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ABSTRACT

Six lectures are presented in this report of the Symposium on Research and Reform in Teacher Education. The lectures are entitled (a) "Teacher Education--Research and Change"; (b) "Theories of Learning and Teacher Education"; (c) "Is Teacher Training Really Any Use?"; (d) "From Studying Education to Teaching a Class: Problems of Transition"; (e) "The Technology of Teacher Education"; and (f) "Retrospects and Prospects in Teacher Training Education." Comments on the first lecture and a concluding speech are also presented. In the concluding speech, it is noted that the papers illustrate that (a) the range and scope of research-based knowledge is limited; (b) a model of research is needed that goes beyond the controlled experiment and factual survey; (c) knowledge of the educational system is basically role related; and (d) a good deal of research work should be planned and carried out in close collaboration with those whose life and work it affects. (HMD)

December 1973

Contents

FIRST PART

page

Consultative Assembly 1

Higher Education and Research 8

General and Technical Education 13

Out-of-School Education and Cultural Development 18

Educational Documentation and Research 26

SECOND PART

Symposium on Research and Reform in Teacher Education, Bristol, 8-13 April 1973

Teacher education — Research and change, W. Taylor 31

Comments on Professor Taylor's lecture, E. Stones 42

Theories of learning and teacher education, A. Brimer 44

Is teacher training really any use? A. Prost 50

From studying education to teaching a class: problems of transition, H. Aebli 63

The technology of teacher education, K. G. Collier 71

Retrospects and prospects in teacher training education, S. Marklund 82

Conclusion, W. Taylor 89

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Second Part

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RESEARCH AND REFORM IN TEACHER EDUCATION

Educational Research Symposium, Bristol, 8th-13th April 1973

The Educational Research Symposium at Bristol was the fourth in the series of symposia sponsored by the Educational Research Committee. The Symposium which was organised by the British authorities under the auspices of the Council of Europe, was devoted to the problems of research and reform in teacher education. It was chaired by Professor W. Taylor, then Bristol University.

The following lectures were given: "Teacher education - Research and change" by Professor Taylor; "Theories of learning and teacher education" by Mr. A. Brimer, Bristol University; "Is teacher training any use?" by Professor A. Prost, Orléans University; "From studying education to teaching a class: problems of transition" by Professor H. Aebli, Berne University; "The technology of teacher education" by Mr. K.G. Collier, Bede College, Durham; "Retrospects and prospects in teacher training education" by Professor S. Marklund, Stockholm. In a summing-up lecture Professor Taylor drew conclusions from deliberations in the discussion groups and the plenary meetings.

All lectures and a comment by Professor E. Stones, Liverpool University, on Professor Taylor's lecture are given below.

Teacher education - Research and change

by W. TAYLOR,
University of Bristol.

While engaged in the preparation of a first draft of this paper, I found myself listening at table to my thirteen-year-old daughter's comments on a new teacher at her school. Well, not really a teacher, as she was quick to point out, but a student, attached to the school from my own university for a period of extended school experience. It appeared that the young woman had made a favourable impression. I enquired why, and my older daughter (who is at the same school) joining in, I was informed of the qualities of a good teacher. The list was a familiar one. Good teachers knew what they wanted pupils to do or to learn. They stated this clearly and simply, and made sure that no one was in doubt about what was required. They had good control over their classes; no one fooled around and disturbed everyone else. They were just and fair in evaluating performance and dealing with disputes. They were efficient, knew how many rulers were needed and where they were kept, returned work promptly with helpful (but not uncritical) comments. They

SP008 240

were interesting to listen to, suggested topics for study that the girls thought worthwhile, and possessed a sense of humour. They were flexible, recognising and making allowance for the effects upon classroom attitudes and performance of a preceding hour's hard fought hockey game in the rain. Did everyone agree about these *desiderata*? I was assured that they did.

But no self respecting social scientist generalises on a sample of two, especially when both are his own offspring. So I turned for confirmation to a little book edited by E. Blishen (1969) called *The school that I'd like*. It comprises statements by children, of every age from 5 to 18, about their schools, their teachers, the curriculum and a hundred and one related topics. Many of the statements show great insight. Some are simply funny. Katherine, aged 12, obviously suffering under an over-enthusiastic gym teacher says :

> "I admit that if all the teachers were oldish men it would be a bit rough on the physical education teacher, although a small fat middle-aged man as a PE instructor would suit me perfectly."

From time to time the editor of this collection tries to sum up the children's attitudes on a particular topic. About their views on teachers he is quite clear. They are highly critical. "Alas, the indictment of the profession ... from the writings of these children amounts to more than a statement of their ordinary human imperfections ... At the very least it must be said that a great many teachers are found singularly unsatisfactory by those they teach. And the main charges are made so consistently, and by so many, and tie in so closely with the general pattern of criticism, that they certainly require the most serious consideration."

"(Teachers) should be understanding, the children say, and patient ; should encourage and praise wherever possible ; should listen to their pupils, and give their pupils a chance to speak, should be willing to have points made against them, be humble, kind, capable of informality and simply pleasant ; should share more activities with their children than they commonly do, and should not expect all children to be always docile. They should have a conscience about the captive nature of their audience ; should attempt to establish links with parents ; should be punctual for lessons ; enthusiastic within reason ; should not desert a school lightly ; should recognise the importance to a child of being allowed to take the initiative in school work ; and above all, should be warm and personal. It is quite difficult to be all these things within the present pattern of schooling ... It is really very difficult to be the teacher the children desire, without enormous changes in the whole system. But any link in a vicious circle has some power to break the circle, and teachers can hardly fall back on a plea of impotence."

Well, few of us have much hope of displaying *all* those qualities, and there are some who would disagree about there being a vicious circle that needs to be broken. But whether it is a matter of breaking with the past, or simply building upon what we have and trying to do things better, most would concede that there is plenty of room for improvement in the ways in which we educate and train teachers. I want to argue that research can help us to make these improvements. But I also want to voice some criticisms about some directions that teacher education research has taken in recent years, particularly in the United States, and to suggest the need for a much more multi-disciplinary approach to the formulation and resolution of problems.

The disciplinary basis of research in teacher education

It is not my intention in this paper to offer any kind of overview of recent research. I did this a few years ago, reviewing more than three hundred studies that I thought relevant (Taylor 1969). Cope (1971), Cane (1970), and Lomax (1972) have since provided somewhat differently oriented but more up-to-date coverage. The voluminous American literature has been surveyed by Gage (1963 and 1971), Denemark and Macdonald (1967) and by Smith and his collaborators (1971). The Council of Europe's surveys of educational research in member countries list numerous studies in the field of teacher education (Council of Europe 1968, 1970). The biggest difficulty in undertaking such overviews is finding a suitable conceptual framework within which the literally thousands of studies that have been undertaken can usefully be classified.

What does all this effort add up to ? How and in what ways has it helped to shape the environment, not just of other researchers, but of policy makers, administrators, professors and lecturers, and teachers themselves ? We must avoid the easy cynicism that answers "not at all" with as much care as the claim for decisive influence. The relationship of research and action is not simple, or direct, but neither is it non-existent. I have tried elsewhere to analyse this relationship (Taylor 1972 a, 1972 b, 1973) and to argue that whilst some

educational research can be more or less directly used, in the same sense that medical research leads to the production and testing of a new drug that doctors then prescribe, the effect of most studies in the field of education is to *sensitize*, to direct our attention to problems and issues and contribute to the way in which we analyse them, to monitor and provide a critical viewpoint on the working out of policies and decisions that derive from our political beliefs.

Within the past five years the already substantial pile of studies in the field of teacher education has gone on growing. More work has been done on the analysis of classroom interaction, on the personalities and cognitive styles of students and of teachers, on the relationship between tutors' grades and school practice success, on the social climate of the training institution and its impact upon students, on the mutual expectations that students, tutors, teachers and pupils entertain concerning one another's performance. Is it possible to characterise what the Americans like to call the 'main thrust' of this work, the direction that it is taking and the professional orientation of those who are carrying it out?

The answer to the last part of the question is clear. The bulk of the effort is coming from psychologists. This is not to say that representatives of other disciplines have not made a contribution. Some sociologists of education are making large claims for the value of an ethnomethodological and symbolic interactionist perspective on life in the classroom and school, and the part that this can play in preparing teachers (Gorbutt 1972, Open University 1972). Studies of social class and educational opportunity, and analyses of how the structural features of contemporary societies impinge upon education are temporarily out of the shop window; relegated by some of the younger zealots to the back rooms as the interests of an older generation. The efforts of Bernstein (1972) and others to suggest a reconciliation of structural and phenomenological approaches have yet to bear fruit.

Historians too, continue to turn up new knowledge and insights on the background of our present attempts to educate and train teachers. In so doing they provide frequent reminders of the long-standing nature of some of our present problems. The accounts of European teacher education written more than a hundred years ago by the assiduous Henry Barnard (1878), inspirer of Teachers College, Columbia, make clear that certification, the induction of beginning teachers, the relationship between academic, professional and practical work in courses of teacher preparation, and the specificity of training needed by those aspiring to work with children of different age groups, have been live — and unresolved — issues for a very long time.

Philosophers, have also been playing their part, and at least in England and Wales it has been a major one. The writings of R. Peters (1968), P. Hirst (1963, 1966), R. H. Dearden (1968), and J. Wilson (1972) have introduced a powerful stream of ideas into course planning that owes a good deal to the traditions of analytic philosophy. Instead of spending time studying the writing of the 'great educators', students in colleges and departments of education today are more likely to find themselves analysing the nature of freedom or responsibility, the justification for punishment or what it means to make a moral judgement. And less centrally, but no less importantly, specialists in educational administration, in comparative education and in the other areas of educational study have been initiating and conducting studies of their own, many of which yield findings which have a place in courses of initial and in-service teacher education.

But as far as research into the process of teacher education itself is concerned — the kinds of thing that are included in articles and collections of papers and books with this title — it is the psychologists who have made the central contribution. Let us take a look at the kind of work they have been doing and try to assess its importance for the way we go about the education of teachers.

Factors that underlie contemporary concerns

A number of factors have helped to determine the form and direction of today's "main thrust" in teacher education research.

First is the sheer scale and importance of the enterprise — more students are pursuing courses in education at post-secondary level in England and Wales than in any other subject — and a recognition that the job can, and should, be done better than it has been in the past.

Second is the realisation that changes taking place in the schools — open plan primary teaching, individualised learning, the use of electronics, the integration of subject matter, a press towards teacher and pupil participation in decision making — all have implications for the way in which teachers are educated and trained.

Third is the new knowledge about learning and teaching that is being obtained from experimental and classroom based studies, and from such specialities as sociolinguistics, cybernetics, organismic research, interaction analysis, and information theory.

Fourth is the taking over into higher and professional education of the interest in curriculum objectives developed from the early work of R. Tyler (1950, 1964). Enormously stimulated by the taxonomising efforts of Ben Bloom (1956), this approach can be seen in use in the large number of curriculum projects that sprang up in the sixties. Beginning with science and mathematics, but extending, through the work of bodies like the Schools Council in the United Kingdom, to take in every subject taught in the primary and secondary school, curriculum research and development has become a major growth area. Not all the projects and the books and materials based upon them have used an objectives approach. Some investigators have been highly critical (Stenhouse 1968), others have paid only lip service to objectives. But all more or less agree that when they act, rational men know what it is they are trying to achieve, and what goes for rational men should apply to teachers, not just in schools but at any level of education.

Fifth, and owing a good deal both to the contemporary *Zeitgeist* and to a movement away from elitist towards mass secondary and post-secondary education, there is a concern with the management of attitudes, with substitutes for the guarantees of personal acceptability formerly provided by social background, personal commitment, and informal socialisation within a residential community (Taylor 1969), coupled with pressure from teachers for a greater say in the selection, training and induction of their colleagues (Thompson 1972).

Sixth, there is a concern with results, with accountability, with producing teachers who can really do something about the problems of the city, the language development of minorities, the social behaviour of the underprivileged. Drawing strength both from radical egalitarianism and from conservative anxieties about social order and the maintenance of standards, such a concern is particularly powerful at the present time. Existing programmes of teacher education have been under attack from both right and left. The James Committee, the Joxe Committee, the Heckhausen Commission and the US Office of Education Model Teacher Education Programmes represent an interest in the improvement of teacher education that extends beyond any one political or educational interest group. At least in part, this interest reflects a disillusionment with conventional approaches.

The earlier weaknesses of teacher education had been blamed variously upon the small size and isolation of the institutions in which it was carried on, a lack of academic and scholarly interest in its processes, the absence of money for research and development activity, and the low level of qualification of both students and staff. In the sixties more and better qualified students, more experienced and academically proficient tutors, more money for research, more books and articles and conferences on the subject than ever before, more activity by the professional associations, all seemed to be having rather little effect upon quality and satisfaction. If more did not mean worse, it did not necessarily mean better. Something other was needed. Something hard, palpable, effective, capable of meeting the difficult problems of minority education, urban disorder and shortage of resources on their own ground, something of a kind that would counter the deteriorating public image of higher and professional education, and reassure those who vote funds, appoint professors, support research, approve grants to students and hire teachers, that the Schools of Education know what it is they are about, and are capable of delivering the goods.

The response has taken different forms in different countries. In England, France and Germany there have been official commissions which have recommended major reforms in the structure and organisation of teacher education — recommendations that have been taken up with varying enthusiasm by the governments concerned. In England, the National Council for Educational Technology has sponsored a feasibility study in the large scale production of learning programmes for use in colleges of education (Collier 1972). Only, I believe, in the United States has there been an attempt to found reforms on systematic and large scale research and development studies. The American experience is particularly relevant at the present time, not simply and crudely because what happens in Chicago and Los Angeles today happens in London or Berlin tomorrow, or because European educational ideas are in many fields parasitic on those of the Americans (although I believe that there is truth in both these propositions) but because we are experiencing many of the same pressures on our systems of teacher education, and we can perhaps profit from studying some of the assumptions that underly the transatlantic response.

Performance based teacher education

The development of specific methods and materials for the improvement of teacher education pre-dates the mid-sixties funding by the US Office of Education of Model Teacher Education Programmes, but the latter have been a major focus of recent interest and have generated a large number of complementary studies. As Rosenshine and Furst (1971) have made clear, the Model Programmes are dominated by the notion of "performance criteria".

> "... the programme developed by the North West Regional Laboratory stresses 'instructional experiences that lead to both development and personalisation of competencies' ... In the Michigan State model, some 2700 modules are specified, many of which are evaluated in terms of trainee behaviours ... The Massachusetts model is explicit in requiring 'the specification of instructional and programme goals in terms of behaviours to be exhibited by the trainee' ... The Syracuse proposal claims that 'the model programme specifies its objectives in behavioural terms, provides situations where these behaviours can be learned, and when behaviours are manifest, assesses their quality and character in behavioural terms' ... The Teachers College Model developed 818 educational specifications." (p. 38)

In a series of publications, the American Association of Colleges for Teacher Education (Elam 1971, Burke 1972, Andrews 1972, Weber and Cooper 1972, Giles and Foster 1972) has explicated the nature of what is now widely called PBTE, or Performance Based Teacher Education, and provided examples of its implementation within particular colleges and school districts. It is argued that traditional teacher education is experience based, requiring the student only to complete a specified number of courses and to secure appropriate grades. There is no requirement for intending teachers to demonstrate their competency in the tasks that they will be called upon to perform. In contrast, performance based teacher education demands that "performance goals (be) specified, and agreed to, in rigorous detail in advance of instruction. The student must either be able to demonstrate his ability to promote desirable learning or exhibit behaviours known to promote it. He is held accountable, not for passing grades, but for attaining a given level of competency in performing the essential tasks of teaching : the training institution is itself held accountable for producing able teachers. Emphasis is on demonstrated product or output. Acceptance of this basic principle has program implications that are truly revolutionary ..." (Elam 1971 p. 2)

In some publications the term *competency based* rather than *performance based* is used, and seems to leave more room for knowledge criteria, as well as performance and product criteria (assessments based on the achievement of the pupils taught by the student) to be employed in the process of evaluation. However labelled, such programmes are field rather than university centred (Bowman 1971), and require a level of co-operation and understanding between the teacher training institution, the school system, the professional organisations and the head and staff of individual schools that goes far beyond that characteristic of much existing teacher preparation.

The definition of objectives is an essential first stage in this approach. Efforts in this direction are currently being made in several countries. Reference has already been made to the American Model Programmes, and in the United Kingdom a National Council for Educational Technology working party has emphasised that :

> "The materials now being produced to form the basis of independent study by individuals and small groups, as well as of class teaching, cannot reach their maximum effectiveness, unless their designers have defined far more precisely than has been customary in the past what they intend the learners to gain from them — in information, conceptual grasp, skills and attitudes — and their producers have thoroughly tested, revised and evaluated them." (Collier 1972).

The definition of appropriate objectives and introduction of sophisticated methods of determining when a student has acquired the required level of competency appear to be crucial elements in the new approach. As Elam (1971) has noted, methods of assessment seem sometimes to be an afterthought, yet in fact control the student's motivation and learning. If evaluation is crude and simplistic, then students' learning will be restricted and inadequate.

The value of thinking clearly and systematically about what students need to know and be able to do in the classroom in order to each effectively, and basing our ideas on the results of research into classroom practice, teacher/pupil interaction and the psychology of learning, is surely indisputable. We can divide up the content of most concurrent and consecutive teacher education programmes into three elements. The study of one or more disciplines for personal education and as teaching subjects ; "educational foundations" such as psychology, sociology and philosophy, and pedagogics or professional studies, including practical experience in

schools. There seems to be a fair measure of agreement, both among students and staff within individual countries, and between different countries, that it is the pedagogical and professional element that is least well done. Furthermore, such professional studies are all too seldom adequately related to work in other areas, particularly the foundation disciplines. In nearly all countries we find a situation in which certain teachers — in the élite academic schools, in post-secondary education — are not required to have undergone any systematic pedagogical instruction at all. In the light of all this, any attempts to place professional training on a better basis are to be welcomed. Research into the dynamics and correlates of children's learning, the sociology of the classroom, the behaviour of teachers, the relationship between particular teaching approaches and learning outcomes, all help to contribute the knowledge on which such a better basis might be constructed. With so much to do, it may seem unhelpful to be critical of the assumptions that underlie some of the present work in this field. Yet if we believe that the tast is an important one, and deserves to attract more financial and material support, it is right that we should try to ensure that future work is soundly based. So let me say why I find some aspects of the present interest in defining objectives, determining performance criteria and assessing learning outcomes worrying.

At the most general level, I find it very difficult to conceptualise what kinds of teachers, what kinds of people and what kind of society would result from a really effective implementation of a performance based teacher education programme. Obviously enough perhaps, I fear the worst. The point is often made that any set of objectives must constitute a dynamic system, subject to progressive development in the light of student feedback and the results of systematic evaluation. This seems admirable, but would it in fact happen that way? Isn't there a very real danger that any set of objectives, especially ones to which a lot of time and money had been devoted, would soon become ossified? If someone giving a prepared lecture notices that his audience is being physically depleted by surreptitious departures, or psychically diminished by the onset of sleep he can, if he cares — some lecturers don't — move on to a more interesting part of his script, or throw it away and try to extemporise in a more arresting and less sleep-inducing manner. Instant feedback, and, hopefully, quick remedying action. But where a set of objectives has taken months or even years to prepare, has involved the labours of many people, and has perhaps generated sets of complex and expensive teaching materials, there is a tendency to go on using these objectives despite weaknesses or irrelevance to changed conditions. Advocates might reply that this justifies really heroic efforts at prior testing and evaluation. But such testing, if it does eliminate some of the potential snags, also compounds any eventual weakness by still further adding to the cost and the implied "authority" of the package.

What kind of relationship between professor and student (and, ultimately, teacher and pupil) are encouraged by attempts to programme teacher education more systematically? Once again, my objection is a general one, representing a sense of unease rather than a shot at any very clearly defined target. It is claimed, no doubt accurately, that performance based studies can be individualised, tailored to students' needs and capacities and pace of learning, to an extent that is impossible with traditional methods (Weber and Cooper 1972). And yet . . . isn't it possible that such individualisation can be perceived by students as providing less freedom of choice, more opportunities for manipulation by staff, than conventional methods? After all, even if in the old days you had to attend lectures, no one could make you listen, or force you to contribute in a seminar or discussion. Just so. Old fashioned methods, we are told, are "ineffective". They do not result in the maximisation of learning. They must be replaced by something more effective. I agree. We all do. But people don't just "learn". The effectiveness of learning is only significant in relation to the importance and the value of *what* is learned, to the kind of society and the kind of régime in the schools and the kinds of relationships between persons that particular contents generate and encourage. And since we know very little about these issues, and disagree rather often about what little we do know, and about what counts as knowledge, and who should teach what to whom, and where, the question of effectiveness becomes rather secondary. As Argyris (1971) has put it — "It is simply not true that society will necessarily value knowledge that produces knowledge which leads to more effective problem solving at the cost of increasing psychological failure". Much of the recent writing on teacher education within the genre that I have been describing is dominated by the ideology of behaviourism. The methods that it recommends have worrying affinities with those used in behaviouristic experiment, in which (again to paraphrase Argyris) subjects are dependent upon and submissive to the experimenter or therapist, have a short time perspective, and perform only those tasks that are assigned to them.

There are many other doubts that could be voiced. Do we know enough about what constitutes effective teaching to be able to devise appropriate objectives and performance criteria? (Elam 1971). Does it follow that a large number of separately mastered skills can readily be embodied in the *Gestalt* that constitutes the teaching act? Does PBTE take sufficient account of the essential context rather than rule-bound character of teaching behaviour? (Broudy 1972). Is there a danger that the content of teacher education programmes will be limited to what can be assessed in terms of behavioural objectives? Is the stress upon accountability, field based study, and professional involvement, anything more than a series of gestures towards certain currently fashionable concerns of powerful interest groups?

In fairness, it has to be said that many of the advocates of performance based training are aware of these problems, make only modest claims for the success of the method, and recognise that its usefulness is limited to certain elements of the teacher preparation programme. They are particularly conscious of the difficulty of producing adequate effectiveness criteria. My traditionally educated children, whose views I quoted at the beginning of this paper, were pretty explicit about what they wanted in their teachers. But a teacher who fails to conform to their specification might still be quite effective in securing passes in the General Certificate of Education. The opposite can also apply. Furthermore, the teacher who is "effective" in the rather formal secondary school classrooms to which their remarks applied, may be quite "ineffective" in the type of open plan infant classroom studied by Resnick (1972 a, 1972 b) who has observed that

> "Since there is no formal means of assuring that the child works on tasks suited to his current level of development in any particular area, the child's acquisition of basic skills in an informal environment depends on a combination of two factors (a) the extent to which the child is able to extract from a complex and "distracting" environment those tasks that optimally "stretch" his current repertoire of skills and concepts i.e., the extent to which he can programme his own learning; and (b) the extent to which the teacher, on the basis of informal observation and evaluation and her own knowledge of the structure of the subject matter, can guide the child to appropriate tasks. In addition, the informal method of teaching depends upon a subtle blending of "self-motivated" learning on the part of the child, the setting of expectations for performance by the teacher, and both peer and teacher reinforcement of intellectual effort."

Certainly in England, and probably in other countries as well, the range of approaches to learning that can be found in different schools has in recent years become much wider. It is not only that we have a bewildering mixture of school types. There are nursery, infants with nursery classes, infants only, infants and junior, junior, and middle (catering sometimes for eight to twelves, sometimes for nines to thirteens, sometimes for still other age groups). There are all through eleven to eighteen secondary, junior secondary, upper secondary, sixth form colleges (I have even seen "County Complementary" on a board outside one school in recent months, but omitted to ascertain what it might mean). Within schools of the same type and catering for the same age range one can find everything from on the one hand, the latest in family grouped, integrated day, interdisciplinary and team taught provision to on the other, a style of teaching and learning that would be instantly familiar to someone whose last contact with schools was seventy or more years ago. While there is no doubt a tendency for teachers to settle down in schools where their own pedagogic practices are in tune with those of the head and colleagues, it is becoming more and more likely that a wide variety of different conditions and expectations will be encountered in the course of a single career. It at least seems possible — I am being cautious — that the skills and knowledge appropriate to one setting may be of little use, even dysfunctional, in another. Hence the stress that teacher educators are placing upon producing flexible attitudes in their students and on the importance of more opportunities for further professional studies on an in-service basis. But if many of the teacher's skills are situation-specific, if the sort of people who satisfy my daughters find themselves at a loss in a more informal environment such as that described by Resnick, then the researcher's task is a formidable one.

The multi-disciplinary character of teacher education research

What sort of research needs to be done, and how should it be organised? Two points are worth underlining. The research that may be most relevant to teacher education is not necessarily teacher education research. Piaget is reported as saying that if he had forty years work ahead of him, he would direct his attention first of all to ways in which biochemistry will affect learning (Popham

1971). If he, or someone of comparable stature, should produce new and striking findings on this subject they could have the greatest significance for how teachers are prepared — but this is not teacher education research in the terms of this paper. Second, research based knowledge is only one input to the decision making of lecturers, principals, professors, administrators, policy makers and all those who have to do with how teachers are educated and trained (Taylor 1973). A whole medley of ingredients — political, professional, personal, situational — go to determine the decisions that we make in this, as in every other field of human activity. Given the right conditions, the part played by research based knowledge will hopefully increase. Such knowledge can help to make more rational, but can never replace, the fallible human judgements within which, after all, the research itself originates.

I have already tried to make clear that, at least in my estimation, much of the research that has been conducted into teacher education has been too narrowly conceived. We have a host of studies that assess teacher and student characteristics, correlate input and process (but seldom output) factors, record attitude changes, and analyse individual teaching performances. But if we are to have an understanding of the process of teacher education that will lead to its improvement we need much more than this.

In the first place, there should in every country be one or more groups of people who operate as a teacher education research unit. Such groups might be located in universities, in research foundations, or in regional or national ministries. Their tasks might include the execution of research projects based upon disciplinary or system problems ; servicing enquiries undertaken in other universities, colleges or teachers' centres ; monitoring innovations in pre-service and in-service teacher education ; initiating and evaluating development programmes ; keeping in touch with and disseminating knowledge about research in the social, behavioural and information sciences relevant to teacher preparation ; offering consultancy on research and development problems to trainers of teachers, administrators and policy makers. The core membership of at least one of these groups should be on permanent contracts, and the group as a whole should have enough time and resources available to permit a certain number of unit-initiated studies and for preparation of other work for subsequent short and medium term contract funding. Ideally, there would also be money to attract on secondment scholars and researchers of distinction from fields other than teacher education, or even from outside education altogether. The experience that we have had with educational research in this country over the past thirty years suggests that some such established group, with a core of people who are free to determine at least a proportion of their own work, and who do not have to spend a third of their project time in devising follow-up applications that will keep them in employment, is the best way to ensure a steady flow of both ideas and worthwhile findings. There are, of course, risks. Recruit the brilliant young, and they will soon be off to more senior appointments ; take on the stable but unproductive, and you can be sure that you have them for life. A great deal depends, as always, on the people you get. But what kind of people ?

It follows from what I have already said that any group concerned with teacher education research requires a diversity of background and talents. Experimentalists and psychologists, students of administrative and curricula innovation, sociologists and system analysts, philosophers and historians can all claim their place. No one group can possibly contain them all. But the point has to be made that improvement in teacher education depends as much upon an understanding of the dynamics of classroom change, of the influence of local politics on teacher deployment, of what we intend by the use of the term "comprehensive school", of the nature of "subjects", of the organisational constraints upon innovation, as upon the analysis of the teaching act or the way in which the college experience affects attitudes. Indeed, some of the apparently more directly relevant 'teacher education' studies have suffered from their failure to reckon with factors other than the individual and the psychological. In general conception, if not always in execution, teacher education research is a field of multi-disciplinary enquiry, the preserve of no one group among the professional educators.

But enquiries are not solely, or even mainly, rooted in disciplinary interests. Many arise from problems that occur in the day to day business of communicating to students the contents and the techniques of teaching — how best to organise school experience, how to relate foundation studies to classroom practice, how to induct new members into the profession, how to categorise the skills and knowledge that the teacher of particular age groups and particular subjects needs and to organise these into an appropriate curriculum. A teacher education research group could help to identify and articulate some of these problems. But many of

them need to be tackled by means of short and medium term co-operative projects, involving university or foundation researchers, teacher education staff, administrators, heads and teachers. Ideally, such projects would form part of a coherent programme, with its own funding. In practice, if past European experience is any guide, such projects are more likely to arise from the initiative of individuals with a particular interest, skill or need, and to proceed on a rather *ad hoc* and discontinuous basis. Given the existence of a central group with a monitoring and disseminating function, this need not prove too great a handicap to progress.

At a third level, there is considerable scope for the staff of colleges and universities to make contributions to knowledge and to the improvement of their own practice by means of small scale individual and team enquiries and development projects. In the United Kingdom an interest in this kind of work has been encouraged by such efforts as the Birmingham Colleges of Education Research Group, recently led by Professor Edgar Stones, the Committee for Research in Teacher Education (CRITE), under the present chairmanship of Mr. K. G. Collier, and the appointment in the University of Bristol of an "Area Research Fellow" (currently Mr. J. K. Taylor) to help college staff and teachers co-ordinate their research efforts and make available the resources of the School of Education's Research Unit. Recent surveys (University of London Institute of Education 1970, University of Sheffield Institute of Education 1970) have shown that at the present time only a minority of college of education staff are engaged in any form of systematic research activity. The work of bodies such as CRITE, coupled with the willingness of funding bodies to support enquiries by members of college staff — some of which would be made enormously more useful by the availability of limited sums of money and perhaps some specialist help from a central or university unit — promises to bring about a higher level of participation.

Research, reform and change

I have probably said enough to indicate that the relationship between research and change in teacher education — as in education generally — is complex and largely indirect. Very seldom is it the case of a particular finding serving in an orderly, sequential way as the main causative agent of a reform or new development. A more common pattern is that recognition of a problem (how can performance during periods of school experience be assessed ?) or a deficiency (what can be done to produce a better way of inducting beginning teachers into the profession ?) or an opportunity (how can funds made available by a slackening of population growth best be used ?) generates a diversity of response-working parties and conferences, professional and public debate, the initiation of a research project, legislation, a ministry circular, all can be involved, but seldom in an orderly sequence. The findings of research feed in to the process of decision making at a number of points. A report to the funding body gives rise to a press conference and, perhaps, a few very over simplified reports in the newspapers and weekly journals. A formal paper in one of the specialist journals finds its way on to book lists for teachers and others pursuing courses for a higher degree, and thence, sometimes several years later, into books of readings and textbooks that are seen by larger numbers of students. A monograph or book reporting the research appears and is read by most of the other specialists in the field and by a number of interested laymen.

Within the past few years it has been recognised that, especially when the project is concerned with a set of decisions or procedures that are of general professional interest, all this is not enough. Grants for research and development projects sometimes include a sum for dissemination. A series of regional and local conferences and seminars are organised, at which the outcomes of the research are reported back to those who contributed experience and data, and/or seem most likely to make use of the new knowledge. But this is still the exception rather than the rule. A good deal of useful information is lost to view, buried in a specialist journal, or in the pages of an unpublished thesis or dissertation. Sometimes this is because the author feels himself constrained to write for his fellow specialists rather than a more general audience, or entertains an unrealistic concept of the relationship between research and change. This is not to argue that publication is always a necessary condition of successful research. On occasion the very activity of research can result in institutional or curricula reform that represents a much more useful outcome than a little read and soon forgotten article in a journal.

All this is a very over-simplified way of describing a process which has itself been the subject of a large number of studies and has generated a plethora of models and conceptual frameworks. The literature on change processes is now very extensive indeed. Dalin (1972, 1973) makes this abundantly clear in his references to a number of the standard bibliographies. Rogers and Shoemaker (1971) sum-

marise some 1,800 publications, Stuart and Dudley's list (1968) has some 650 entries, and Havelock (1968) has no fewer than 4,000 items in his bibliography on knowledge utilisation and dissemination. (See also Carlson 1965, Eidell and Kitchel 1968). In the face of all this, Shubik's (1967) comment is apposite

> "... even with our ingenuity for coding, the overload grows, especially if we wish to maintain values that stress individual men not as small component parts of the social intelligence, but as individuals.
>
> If we believe that our political and economic values are based on the individual who understands principles, knows what the issues are, and has an important level of knowledge and understanding of his fellow citizens, then the twentieth and twenty-first centuries pose problems never posed before."

If we are to understand the relationship of research and change in teacher education we have to connect what psychological study (with all its limitations) has ascertained about the attributes of the successful teacher, the nature of the learning process and the interaction of teacher and pupil, with what systems analysts, students of politics and administration, sociologists and others can tell us about the context and conditions of innovation and reform. We have to do this in a way that yields knowledge and insights that can be used to devise new programmes, new curricula, new organisational forms, new and mutually supportive relationships between educators of teachers, administrators, school staff, inspectors, advisers and the students themselves. There are great variations in the arrangements for teacher education and training that exist in the countries represented at this symposium. I hope that in our papers and discussions we can concentrate, not upon the differences, which are real and important enough, but on the problems and aims that we share in common. The improvement of teacher education is an ambition to which every nation represented here is committed. Let us find out how research can help us to achieve that ambition.

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Comments on Professor Taylor's lecture

by E STONES,
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I am a good deal in sympathy with much of what William Taylor has to say. I endorse his comments on the desirability of a multidisciplinary approach to the formulation and resolution of problems. I agree with his comments on the value of thinking clearly and systematically about what students need to know and be able to do in the classroom in order to teach effectively. I also bow to his superior acumen in educational political analysis. However, I also believe that certain aspects of his paper misconstrue some current thinking in the field of teacher education in ways which are more likely to muddy the conceptual waters than clarify the important issues. I should like briefly to explain why I think this is so.

The main focus of my dissent is in the discussion of things such as performance based teacher education, the systematising of objectives and the behaviourist spectre flitting around ubiquitously. Not that I wish to defend performance based teacher education as presented by some of its exponents, or controvert the thesis that some activities associated with it are cynical political genuflexions towards holders of the purse-strings, but to argue that to confound a variety of procedures each with a variety of shortcomings and to impute to each the flaws of all, is to throw the baby out with the bathwater.

Taylor slips from a discussion about performance based teacher education to a consideration of educational objectives as if one implied the other. I personally considered the statement of objectives to be a useful exercise long before I heard of performance based teacher education, and I do not consider my present support of objectives commits me to the programme of performance based teacher education. I think that discussing them together only confuses the issue.

On the question of educational objectives, I submit that there is a further confusion. In discussing objectives and expressing concern about possible rigidity and ossification, the argument moves from the question of objectives to the question of teaching methods. Even the examples given of responding to feedback from the audience are related to teaching and not to objectives, unless there is an implicit shift from an objective 'to inform his hearers' to an objective 'to entertain his hearers', or some such reorientation. On the other hand the lecturer may not have modified his objective at all but, because of the feedback from the audience, he takes a decision to modify his teaching method in this way or that, and if at the end of the day he does not achieve his objective, he does not necessarily abandon it, but may well resolve to mount a better teaching performance next time. The general point may be stated that specifying objectives says nothing about teaching to achieve the objectives, and just as deciding upon a destination leaves open the question of mode of travel and often route to be followed, so does making a decision about the objectives you wish to set for yourself when setting about a teaching task. Taylor's point about the production of expensive teaching materials leading to ossification is irrelevant to the argument about objectives, but it is worth noting that it is not irrelevant to an objective-free unstructured teaching situation making use of 'complex and expensive' teaching materials.

Similar comment may be made about the arguments about prior testing and evaluation. Objectives cannot be evaluated in the way Taylor seems to imply. Objectives are consensual at best and may well be idiosyncratic. 'Evaluation' of objectives, as I see it, can only relate to some index of acceptability by teachers, a question, which as far as I am aware, has not yet attracted any discussion. Some writers, taking the point that specifying objectives is not an easy task, have proposed that objectives be written in various fields and 'banked' in a similar way to item banking of test items. A teacher would take the objectives from the bank which seemed to him to be appropriate for the task in hand. Given that a teacher has the freedom to choose the objectives he wishes, or to reject them all, the suggestion seems a reasonable one. If unscrupulous political manipulators use the objectives for their own ends, or if teachers accept a 'new orthodoxy' from inertia, it is not the fault of the objectives.

What can be evaluated is the extent to which objectives have been achieved. But this is a question of the efficacy of the teaching not of the rightness of the objectives. True, if a teacher finds he cannot reach his objectives he has the choice of modifying the objectives rather than changing his teaching, but this is a pragmatic action unrelated to the 'rightness' or 'wrongness' of the objectives. Once again the point must be stressed that the discussion in Taylor's paper has confused the specifying of objectives with the action taken to achieve them.

I am puzzled to discover the main focus of concern in the discussion of the relationship between professor and student. True, Taylor himself has a similar problem, but he does make some suggestions. Is it because performance based teacher education can be individualised? Is it because it aims to achieve its objectives? Is it because it has leanings towards behaviourism? Or is it because it ignores the question of values? In the course of the discussion performance based teacher education seems to have been taken as being synonymous with a systematic approach, so although I have no desire to present a defence of performance based teacher education. I would presume to comment on what I take to be misconceptions implicit in the questions asked.

I find it difficult to comprehend the defence of an unsystematic approach on the grounds that it is not effective. I am not persuaded by the suggestion that since there is some disagreement about what we count as knowledge and who should teach and

so on, that it is just as well that we don't teach terribly effectively. Perhaps a systematic approach would enable us to expose to more effective scrutiny those areas where there is lack of consensus or understanding and enable us to do something about it. It might even help us to find out what it is that students would want to reject and why. Part of the input to a dynamic teaching system must be student reactions as well as student performance if the system is to be truly adaptive, and the more information we can get about these things the more likely are we to be able to adapt the system.

The impression I get from reading this section of Taylor's paper is of a false antithesis. At one end of the continuum is *systematic* and at the other end is *humane, supportive* and concepts of that nature. *Systematic* acquires overtones of *manipulation*. The argument goes from a discussion of effectiveness which involves a systematic approach to effective problem solving 'at the cost of psychological failure', which seems to me to be a complete non sequitur besides being most imprecise. In this way systematic approaches to teaching are tainted with essentially pejorative epithets capped by that all purpose execration *behaviourist*. Is it that because behaviourists are systematic all who adopt systematic approaches are manipulators of submissive subjects? Is it quite impossible for a teacher to teach effective problem solving and thereby decrease 'psychological failure'? And is it true that the systematisers completely ignore the question of the inter-relationship of specific teaching skills in the complete teaching act? At this stage, I must confess, I have difficulty in surveying the field of battle because of the bodies of straw men.

I would like to question one more important point. Are teaching skills situation specific? Taylor thinks they may well be and goes on to say that if they are, the researcher's job is a formidable one. I would argue that the researcher's job is a formidable one in either case. However, I would incline to the view that there is a set of skills of a general nature and the task of identifying them and then training for them is indeed a formidable one. I would argue, however, that systematic analysis of teaching problems and the devising of systematic teaching sequences to help students acquire those skills is the very antithesis of the picture that has caused Taylor so much concern. Skills of this nature are so general and complex that it would be quite impossible to teach them by rote to submissive students. It would be much easier to teach the simpler skills that we should be concerned with if they were situation specific.

In these comments I have tried to explain why I think the fears expressed by Professor Taylor about systematic, objectives oriented approaches to teacher education are less well founded than he would believe. I would question the view that such approaches are more prone than others to political pressures. I would also argue that all the objections Taylor makes to these approaches could equally well apply to his own suggestions. In conclusion, I would like to quote the lines from Blake that I quoted in my book on objectives: "I must create a system, or be enslaved by another man's."

Theories of learning and teacher education

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I.

In educating teachers and particularly in preparing them for their professional tasks, we are aware of an expanding body of knowledge that contends for inclusion in the curriculum. Philosophy and psychology have given space to sociology and each discipline has split into a number of relatively independent branches of study. It is necessary from time to time that we review contenders for inclusion in the curriculum, particularly where the body of knowledge is expanding at an increasing rate and new knowledge does not necessarily make old knowledge redundant. Learning theory would seem to have self-evident priority, but its volume of related scholarship and experiment and its intrinsic complexity forces us to examine its place.

No one surveying psychological theories of learning could help but be impressed by the range of

choice open to him. He can choose from amongst cognitive theories, behavioural theories, dynamic theories, social theories, developmental theories and stochastic theories. Even within these his choice is wide, he can choose from a range of intervening variables and hypothetical constructs, from amongst types of conditioning ; he can focus on drive reduction or striving towards goals, he can choose from an array of information theory models. His choice will be determined partly by his predilections and partly by the nature of the learning in which he is interested. It will not be determined for him by someone's critical experiment — the search for it is vain. Except for the specificity of the learning phenomena to which they attend, most learning theories are capable of offering explanations of the experimental findings of proponents of other theories.

The educator is inevitably eclectic in his choice, since his need for a theoretical foundation for his practice is immediate and a convincing synthesis of theories is lacking. If he were to ask on what principles learning theories are broadly agreed in so far as they attend to instruction and training, the following list taken from Hilgard might be considered.

1. Learners differ in their readiness for learning and in their rate of learning. Age, ability and motivation are the principle variables.
2. At any given age and level of ability, a learner who is motivated will learn more readily than one who is not, though excessive motivation can disrupt learning.
3. Positive reinforcement and learning motivated by success is usually more favourable to sustained conditions for learning than negative reinforcement or learning motivated by failure.
4. Intrinsic motivation is preferable to extrinsic motivation.
5. Tolerance of failure is best learned in a context of success.
6. Learners must learn to formulate or identify with goals which are appropriate to their state of readiness.
7. Previous learning experience inclines a learner's attitude and response to new learning situations.
8. Active participation by the learner, (meaning by that a voluntary investment of attention, aspiration and action), is preferable to passive involvement.
9. Learning is improved when the materials and tasks presented are meaningful to the learner.
10. Practice is essential to the acquisition of skills and the memorising of dissociated facts, the long term retention of which is improved by distributed recall.
11. Knowledge of success or error in performance aids learning.
12. Transfer of learning to new tasks is improved if the original learning took place across a variety of tasks and if the learner derives the principle of transfer for himself.

This list contains little that could not have been derived by an experienced teacher reviewing that experience. It contains a little about learners and more about learning situations. It says nothing about the social mediation and context which is all important in school learning. It says nothing about the learning of affective, attitudinal or moral dispositions by the learner. In short, it offers the teachers only limited guidance on the construction of motor and cognitive learning situations and for the rest he is to be like God, all pervading, all knowing, all powerful and invisible. Since he is none of these things he may be forgiven for choosing to prefer traditional practice which at least provides an ostensive model and does not presuppose his infallibility.

II.

It might be argued, as it has been, that the justification for teaching learning theory to teachers is not that it leads to prescriptions for teaching but that it involves them in general considerations related to their task and that the intellectual profit of being more profound not only contributes to their personal enrichment, but in some mysterious way internalises principles for action, attention and caution. This argument might have merit if in fact the education of teachers directed them towards evolving a body of theory, sufficiently personal and relevant to the tasks for which they were preparing themselves, to have some likelihood of transfer. All too often, it involves the learning of second-hand verbal statements, the gist of other people's arguments and anecdotal accounts of experiments. Student teachers do not achieve the recognition of the critical distinction between learning and performance. They do not contend

with the dilemmas of learning theorists, who although they seek to account for within-person changes and recognise differences between learners in their response to learning situations, test their theories through between-person treatment differences and through observations of performance outcomes, in which successive change in performance is regarded as evidence of the fact and rate of learning.

The student teacher finds his attention focussed on experiments which are regarded as critical in the illustration of theoretical difference.

He is not aware of the limitations being imposed on the generality of theory through the need to account for past experimental observation and through the constraints of the academic context in which much learning theory is developed. To take but a few of these constraints each of which is subject to notable exceptions: firstly the theory usually relates to relatively short-term learning and is tested by short-term experiments; secondly, the theorists usually desire to pose theories which hold true across persons and for this purpose the persons are permitted to be quantitatively but not qualitatively different; thirdly, the consequence of experiment is usually to sterilise the context of learning — holding constant often means reducing the variety of learning context and imposing conditions which are replicable but not generalisable.

If it were possible to lead all intending teachers through the intellectual excitement and arrogance of theory construction and experiment into humility in the face of the contradiction and complexity of the classroom, perhaps the teaching of learning theory would be justified. Even at its best, however, it would only inform teaching which had already been primarily modelled on familiar exemplars of teacher behaviour. Expectations of learners, beliefs about learning processes, satisfaction with learning conditions, assumptions about schools would already have been derived from years of captive existence in traditional institutions. Given the ease with which known exemplars can be reified, what chance does the patchy and ill-fitting acquaintance with learning theory have to influence the teacher's adjustment to the learner? Little! My own experience with both intending teachers who have completed their teacher education and experienced teachers reflecting on it, is that learning theory is regarded as an esoteric branch of psychology which, interesting though it may have been, is irrelevant to their teaching.

If one is to set out afresh to derive learning theory for teachers, then considerations of elegance and parsimony, even of internal consistency and verifiable deductions must give way to operational effectiveness. There can be no doubt that operational effectiveness is dependent on intending teachers' prior learning of models of what school is like. Those of us who have the chance to experience schools in other countries are first of all comforted by their similarities to our own and disturbed by their differences. This, our first reaction, is conditioned by ingrained expectation and habit which supervenes over our academic detachment. It is relatively easy for us in our ivory towers to reassert our exhortations in accordance with our ideals. It is much more difficult for practising teachers to follow our exhortations in the institutionalised conservatism of our schools.

If learning theory is to contribute to effective teaching then it must begin by accepting that our learners, the intending teachers, understand school learning in a particular way. Moreover, as 'becoming' teachers they are more concerned with fulfilling their new role than they are with understanding the delicacies of theoretical controversy. A child appears to the intending teacher as a whole person with whom she reacts, to whom she sometimes feels sympathy, sometimes anger, sometimes fear, sometimes detachment. No child appears in isolation but in the setting of a social context, which, although never static, is characterised by her in terms of a number of relatively stable states each of which brings about an affective response in the teacher and which are interpreted by her as positively or negatively contributing to her intent for the child-learners. Her ability to respond appropriately to the dynamic of the social context will depend upon the maturity of her own social perceptions. There are adults who have not learnt to relate to more than one person at a time and who in face of complex social settings, withdraw, single out one person, or treat groups of persons as if they were one person. Because of the captive condition of children in a class and the isolation of the teacher, the situation encourages the adoption of simple and immature social perceptions, particularly because it is a re-enaction of a situation engrained throughout childhood and probably reinforced during teacher education. It is my belief that the explanation of authoritarian teaching-learning situations is that the simplistic social perception of the child is carried forward into the first traumatic experience of being in charge of a whole class. A primitive form of authority became necessary because no relationship other than the dependent one of children on teacher can be fitted to the simply perceived social structure.

If we attempt to restructure our students' perception of the social task of teaching then it is of little use to offer them a detached and controversial body of learning theory, just as it is of little use to exhort them to be "child centred" in their approach. An operational approach to learning theory for teachers must present a view of children's learning which is in keeping with the learning situation we wish teachers to create and the role we wish them to adopt. Such a theory must be sufficiently simple that it can be held in mind during the immediacy of face to face teaching. It may even be better to abandon an appeal to a coherent body of theory in favour of the assertion of fundamental principles of learning. Some of these principles might be as follows :

1. It is in the nature of human beings that they will learn. Education does not make learning happen ; it seeks to affect the content, process and direction of learning in accordance with a set of values.
2. Learning is principally a process of change internal to the learner. It goes on happening. There is no absolute beginning or end of learning.
3. Some learning is directed primarily towards a level of performance, for example a degree of skill, a thinking operation, a use of language.
4. Some learning is directed primarily towards a feeling for things, people or ideas. To 'know', means to have both an idea and a feeling.
5. During wakeful states, learning is prompted by voluntary search for 'unknowns' to become known and for 'knowns' to be restructured, and by the incongruous, the unexpected and the deeply moving. The clearer the knowledge of what is to become known or achieved the more effective is the pursuit.
6. The most extensive and significant influence on what is to be known comes from social interaction which differentiates the physical environment as well as creating an environment of its own.
7. Skills are acquired by successively closer approximation to target skills, in which awareness of error is possible.
8. Progressive learning towards a foreseen goal is facilitated by frequent knowledge of success, whenever improvement in performance and rate of learning are co-ordinated. When no such co-ordination is possible, or when performance is not relevant to learning, positive feeling and voluntary search facilitates learning. Since education involves long-term learning, it is more important for a child to build and retain positive feelings about learning situations than to achieve a particular goal.
9. Principally because of their differences in level of development and in previous learning, learners respond differently in the manner of their attention, the degree of their involvement and in their rate of improvement in face of a given learning opportunity. No learning situation is the same for all children.
10. Learning situations are most favourable when (a) each child finds something to become known or to achieve, (b) when he can alter the level of his involvement to suit his likely level of success or sense of well-being, (c) when the risk he runs of negative feelings about himself is small, (d) when there is social interaction in which he has an active part.

This list of principles is intended to be illustrative rather than exhaustive. In selecting a principle for inclusion, the criterion should be how far it provides unequivocal guidance to teacher action. While theories of instruction and theories of learning have been traditionally segregated, they are inseparable in presentation to teachers. At least no principle of instruction should contradict a principle of learning. It has been the besetting sin of those of us who have been responsible for the education of teachers that we have felt it necessary to introduce useful and important psychological constructs into our accounts of children's learning for teachers. While it may be perfectly proper and desirable to discuss the psychology of cognition, motivation and affect with our students and to characterise psychological development in terms of stages we should emphasise that these analytic devices are for the purposes of furthering our studies of children, in their differences from each other and in themselves over time. Within a set of operational principles of learning they lack utility.

III.

The notion of operational principles of learning should be carefully distinguished from the notion of operational objectives in learning. There can be no doubt that the effect of Bloom's *Taxonomy of Educational Objectives* has led to a salutary reconsideration of what learning is trying to achieve. In the context of curriculum revision in the University of Chicago, where the quiz and the objective examination were the order of the day, a demand that courses should have concern for hierarchy of process and should examine course content to see whether examination requirements were realistic,

made sense. Here in Bristol, where courses of teacher education did not involve examinations, Bloom found himself nonplussed in representing the importance of his taxonomy for teacher education. There is no benefit in carrying on a debate for or against operational objectives. Teachers will necessarily continue to reformulate objectives and to seek to be explicit in their statements of them.

It is, however, important that they should not come to believe that behavioural outcomes are the sole or even the main objectives of educational processes. If the aspirations of lifelong education are to be realised, and if the cultural reappraisal with which our schools are contending is to become possible, social, moral and aesthetic values must be realised in the objectives of education. Such objectives are rarely capable of critical behavioural formulation and being explicit about them implies reinterpreting ideals in the currency of contemporary society. Reinterpretation does not mean acceptance of all contemporary forms of social expression. Even the most desirable of ideals may be perceived in forms which are degrading upon social change. Egalitarianism is a worthy principle which has traditionally appealed to the conscience of the bourgeoisie. It is laudable to decry the smug application of normative, middle class standards in traditional education. It is foolish to confuse the rejection of middle class privilege with the uprooting of enduring European cultural heritage. In the name of motivation as well as of egalitarianism there is currently an advocacy for adjusting the content and process of learning to the social background of the learner, particularly when the learner endures low socio-economic status. While it is clearly necessary that our teachers should have an understanding of, and a feeling for, the way of life of the families whose children they teach, they will do such children a disservice if they attempt to draw the stuff out of which learning situations are made, mainly from the social background of the learner.

One of the apparent virtues of drawing directly upon the immediate background of the learner is that motivation may be enhanced by the meaningfulness and emotional warmth of one's own background. What one is familiar with can also be boring, fleeting in its attention-getting properties and parochially normative in its implication. Much is made in learning theory of the concept of motivation. It is vital in a great deal of the experimental work to which learning theories give rise, since so much of it is done with animals, with whom it is necessary to induce restlessness and irritability by such devices as starvation in order to secure activity. The human learner is motivated so long as he is awake. It is not necessary to prod him into activity but only to offer him such involvement as he is willing to take. The range of opportunities in which the child learner is willing to involve himself is extremely large and presents no restriction to the teacher in adapting school-based learning situations to fit that range, so long as the teacher remembers that not all children will wish to involve themselves in the same things, at the same time, at the same level. When educators talk of motivating children to learn, they are not speaking of creating drives towards activity but of securing appropriate entry behaviour to a learning episode. They sometimes confuse the generation of excitement with securing active participation.

All learners have a desire to simplify what they perceive and to make coherent sense of what they perceive. Whenever a learning opportunity is offered to them, they are concerned to establish the level of risk they run in entering it. If entry to a learning episode appears to involve too high a risk, the learner may opt out in a variety of ways by becoming passive, by ridiculing it or disrupting it, by rejecting it as being beyond him. Consequently, in designing learning situations, teachers should ensure that they are making provision for differential risk-taking, particularly at the beginning of a learning episode.

The education of teachers may be regarded as involving the same basic elements of learning as are appropriate for children. The entry model is especially applicable in the case of young teachers who are entitled to the same respect for their personal fears and anxieties as children are. Reduction of anxiety cannot arise directly from acquaintance with the disciplines of psychology, philosophy and sociology, however relevantly these are focussed on the act of teaching. Such reduction can best be accomplished by allowing the student to determine the level of risk to which he will expose himself, the level of difficulty of the tasks rising as he increases his capability of limiting the risk. Fear of social ignominy is common. The severity of the ignominy rises with the number of persons being taught and with the number of people to whom his act of teaching is exposed and in proportion to his unfamiliarity with them. The probability of suffering ignominy, that is, of failing, rises with the length of the teaching episode and with the degree to which the teacher is solely responsible. It also rises when there appears no possibility of escape action. The probability of success rises with the teacher's awareness of the formulated strategies which permit adaptation to

pupil action and which direct him towards decision points and critical signs of relevant pupil activity.

Teachers should not be presented at the outset of training with a notion of an ideal teacher which contains so many virtues that it is unrecognisable as being even possibly themselves. Such ideals all too commonly inhibit the development of a style of teaching which is compatible with the student's personality. Basic strategies for conducting short teaching episodes should be taught first and tried out with provision for short-term feedback. (I apologise for not referring to micro-teaching in this context, but there have been so many varieties of the technique since the term was devised that it is preferable not to use it as a shorthand form for what I mean.) I believe it to be important that young teachers should be taught an escape strategy one which allows them in the face of impending disaster to engage pupils in positive activity. Amongst my most embarrassing recollections are the numerous occasions in which I have seen young students trying to escape from a lapse by inconsequential talk, or by instructing the children to carry out a useless but silent activity.

IV.

In the Research Unit of the School of Education in the University of Bristol, we have been carrying out research into teacher education for almost ten years. Our studies have encompassed the practical, school-based experience of students over the three years of their college courses and in their first year of teaching. Our study of probationary teachers not only threw light on their experiences during that year but also gave us their reflections on their period of professional preparation. They questioned the relevance of much of the theoretical work in educational studies to their activities as teachers and, as expected, placed a higher value on their periods of school experience. While it is easy to explain away their judgements as an outcome of their heightened perception of professional induction viewed from the standpoint of their anxieties and the difficulties they must have in perceiving the tenuous relationship between theoretical studies and practice, such judgements cannot be dismissed.

When Edith Cope carried out the first of her studies in school experience and teacher education, she found that the expectations of what practice teaching would achieve were subtly different amongst the three partners of the enterprise : the students, the college supervisors and the teachers who had day to day contact with the students. Amongst the strong expectations of the supervisors were that the practice would enable students to know children better and that it would enable them to translate theory into practice. The students were much more concerned that the practice should enable them to know themselves better in the context of the classroom. The teachers expected that the practice would achieve closer knowledge of class control, awareness of the school routine and enable the college to make appropriate judgements about the students. These differences were contained within a broadly similar set of expectations which suggests how easy it is to believe that all partners have the same intentions. If the learning process by which students acquire professional competence and confidence is to be effective, then we must appeal to that body of learning theory which deals with professional socialising.

In Edith Cope's second study she attempted to set up two action projects, in which comparable groups of students were supervised during a teaching practice by the teacher in the school to which they were assigned. In the case of one group of students, responsibility for planning the conduct of the supervision was placed in the hands of groups of teachers, who had the freedom to ask for information from the college and to gain an idea of what the college was trying to achieve. Amongst the second group of students, the responsibility for the supervisory practices of the teachers was placed in the hands of the college supervisors. A third group of students followed a traditional practice of the college and were placed in the supervisory care of teachers who were given no special preparation for their task. The outcome of the study is fully reported in *A Study of a School-Supervised Practice*. I will select only one of her concluding commentaries :

> "In many instances, communication between college staff and the class teachers is minimal. Class teachers offer practical help and guidance which is greatly appreciated by students. They do this, however, against a background of uncertainty as to the nature of the college courses, the college's expectation of them, the level of participation required and the kind of intervention considered useful. They lack a clear understanding of their rights and obligations in relation to such aspects of the practice as responsibility for initial planning, for preparation, and for the notebook. They have little opportunity for exchanging views with tutors as to general criteria to adopt in evaluating student's performance, or possible ways of assisting student learning."

In a further study initiated by Edith Cope and

continued by Ian Lewis a more intensive attempt is being made to create positive supervisory conditions. Teachers, students and college supervisors meet together in teams to discuss the conduct of practice lessons and the process of supervisory feedback. Both the planning and the practice teaching is carried out under team conditions. Members of the team meet as equal partners all of whom have an innovatory intent.

The studies carried out in Bristol illustrate the operational view we are attempting to take of the process by which students become professionally socialised. It owes less to classical learning theory than it does to our ideals of teacher-pupil relationship. When we cease to regard our students as recipients of our stored knowledge and offer them principles which are consistent with what we know of human learning, it is possible that they may become enthused over learning theory and experiment. I believe that learning theory and experiment has a place in advanced courses in education when experience has generated questions about principles.

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Is teacher training really any use?

by A. PROST,
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Teacher training is in many countries the main professional activity of specialists. Quite naturally they debate with one another the various techniques of their art and, as they are good academics in the universal republic of letters, they hold symposia where they discuss reports full of references to the works of colleagues. No branch of knowledge progresses otherwise.

I hope I may be pardoned here for not quite playing the game and for tackling the problem in a paradoxical and somewhat provocative fashion by asking a radical, if not iconoclastic question : "What if teacher training is no use ?" Let us refuse to accept without proof the notion that teacher training is a necessary task which must be performed at all costs and ask those who train teachers to prove what use they are. In so doing we are seeking to restore to its true subordinate place the consideration of teacher training methods and to give priority on the other hand to the declared aims of teacher training.

It is in any case not superfluous to ask whether there is really any use in training teachers, when we consider briefly what happens in the classroom. The explicit aim of training is to produce a certain type of teacher behaviour in the classroom. If we reason experimentally, the effectiveness of training should be capable of proof. An impartial observer considering the way in which several teachers who have been differently trained teach should be able to detect in their work differences that can be imputed to their training. Now it is quite clear, in France at all events, that there is no difference in behaviour towards pupils, between 'agrégés', who have received no training, certificated teachers, who have been trained, and even many lower secondary school teachers who have come from the primary sector and whose training has been quite

different. Hence it would appear that teachers can be trained in any way you like without it making any difference to their way of teaching.

This view might well discourage those responsible for education and for teacher training. If training is useless, why should we continue to spend money on it ? Would it not be better for those who devote their intelligence and time to it to find employment in other fields ? These are possibilities that must be contemplated, otherwise there would be no serious point in asking questions. Perhaps, however, consideration of the reason why training does not affect practice may lead to less negative conclusions and indicate to us on the contrary in what directions more effective training could be sought.

WHY TRAINING DOES NOT AFFECT PRACTICE

There may be two quite different reasons for the small effect that the training of teachers has on their teaching. By "teaching" we mean all aspects of the teacher's behaviour towards his pupil — intellectual and moral as well as affective — and all its consequences for the pupils. The first reason is that training is not the only thing that conditions classroom teaching ; the second is related to the training itself, or rather to the fact that the profession for which it is a preparation has several specific features which are something of a stumbling-block to training.

The teaching process as the resultant of a system

The teaching process may be analysed as the resultant of several factors which must adapt to each other and find their balance. In short, it is the mutual adaptation of teachers to their pupils and to the school tasks they have to perform. It is the teaching process which daily produces this adaptation of teachers and pupils to each other and to their work.

Each of the elements of the system can be analysed. Tasks for example can be defined in two ways : explicitly and implicitly. Explicitly they are determined by curricula, syllabuses, instructions (where they exist), examination requirements, timetables, the way in which pupils are grouped, etc. Implicitly, they are determined by the material resources made available to pupils and teachers, by the area and design of the classroom, and by a series of tacit unwritten standards, some of which — for example the criteria on which the pupil's work is judged — would be all the better for being explicit.

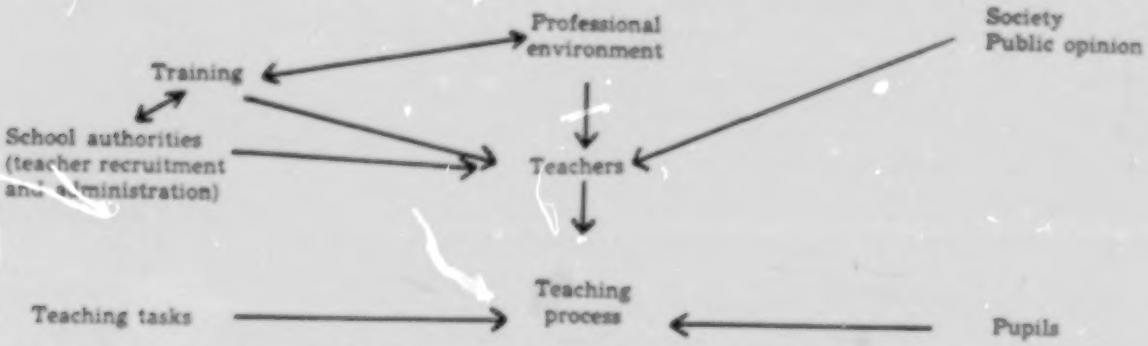
Similarly, pupils may be studied both as individuals and as a group. Their social origin and sociocultural level, for example, vary in the course of the process of democratisation and make it necessary for the teaching process to be re-adapted. Their attitude towards the teacher as an adult depends on their more general attitude towards other adults, especially their parents. What they expect of school changes, and so forth. Each change in the pupils, like each new definition of the work to be done, will be reflected in a readjustment of the teaching process.

Teachers, of course, are not passive in this matter. They too bring their whole personality into play : their knowledge, their attitude towards their pupils — and, more generally, towards young people and towards their own children (1) — their expectations and their ideas concerning the ideal class. The aim of teacher training is in fact to make use of these various factors in order to influence their teaching. But this intention obliges us to analyse more closely what may determine teachers' behaviour.

Training in fact is not the only factor that can influence that behaviour. At least three other factors must be considered. The first is institutional : it is constituted by all the rules and procedures that determine the recruitment and career of teachers. The chain of authority on which promotion depends is particularly influential in this, and probably in the event of conflict between attitudes derived from training and those esteemed by the authorities the former will not long stand up. The second factor is extraneous to the school : it is the expectations of society in general concerning teachers, particularly the behaviour that it expects of them : for example, never to strike a child. Teachers are made aware of the expectations of public opinion through the press and the mass media, but also, more directly, by pupils' parents and by all their contacts with those who are not teachers. The third factor may be briefly referred to as the influence of the professional environment. This consists of all the various kinds of pressures within the teaching body, some of which are institutionalised (unions) and others informal, but none the less real for that. There is a certain set of teaching techniques that the sociological group of teachers as one finds it in a staff meeting or a teachers' common-room considers natural and accepts. A young teacher, who in trying to apply the methods he has learned during his training comes up against the tacit disapproval of his professional environment, would find himself in a difficult situation, and in the end would attach more importance to the opinions of the group to which

he wishes to belong than to those of his former method lecturers.

This analysis of the teaching system, and particularly of those features of the system that determine teachers' attitudes, may be summed up in the following diagram, where the arrows indicate the influences that are at play.



If we are not to over-simplify, we must note on this outline the lateral and reciprocal influences. Training in particular cannot be completely freed from the pressures which on the one hand the professional environment and on the other the staff administration authorities try to exert upon it from the angle of their own particular objectives. We need only, for example, consider the effects of a shortage of teachers on length of training.

From this brief description of the system of forces — to use the language of physics — of which the teaching process is the resultant, we can draw two particular conclusions which are more directly related to our argument.

The education system

Any education reform pre-supposes a re-adjustment of all the components of the system : it would be possible in fact to grade the various innovations according to their importance on the basis of the amount of adjustment they necessitate. Professor G. de Landsheere has proposed a distinction between innovations according to whether or not they demand any rethinking of the actual objectives of the school (2). This distinction coincides very closely with my own. At one extreme of the scale we find what Professor de Landsheere calls "gadgets", which do not affect the balance of the system — e.g. the introduction of the ball-point pen in schools. More important are those innovations which require a limited readjustment of some features in the system. Thus, for example, the appearance of audio-oral material in modern language teaching has little effect on class practice, if the teachers do not learn how to use it. This of course, is why such methods often seem superfluous ornaments : the innovation remains something extraneous to the teaching system and has no effect on it unless other elements in the system are modified in consequence. At the top of the scale, the true reforms are those which call for a fresh balance in all the components of the system.

We may find one example of such reforms in French secondary education between 1880 and 1902. Between these dates in fact there was a real transformation that produced our present education system. Before 1880 educational practice was centred around pupils' written work. The definition given to both pupils and teachers for the school work required was a definition of written exercises : Latin dissertation, Latin prose, translation from Latin, Greek prose, translation from Greek. Instructions and syllabuses did not lay down the hours to be devoted to each subject nor state the subjects to be dealt with. They fixed the day on which an exercise must be given to pupils, the day of the week when they must hand it in, and the day when the teacher must give it back. The timetable reflected the predominance of written exercises. As compared with four hours a day spent with the teacher (for dictation of exercises or correction, or reading the best answers, rather than lessons in the modern sense, except in philosophy), pupils had to spend seven hours doing their exercises under supervision.

This system changed radically between 1880 and 1902, but all its features changed at the same time — this is what illustrates and confirms our analysis. On the one hand, both the explicit and the implicit definition of the work were changed. In 1880, for the first time in France, a definite number of hours a week were allocated to each subject. The baccalauréat was reformed three times : Latin disserta-

tion and Greek prose disappeared. Translation from Latin took a less prominent place. The French dissertation which for generations had simply been modelled on the Latin dissertation, that is to say it was a rhetorical development of a theme, was changed to an essay on the history of literature as the subjects of the baccalauréat evolved in that direction. Public opinion played a very great part in this evolution, as it was felt that the traditional exercises were mechanical and it was necessary for young minds to be given more varied and more substantial diet. At the same time the pupils changed : there were far more day pupils (whose work was more difficult to keep a check on). Above all teachers were now trained in Arts and Science Faculties, whereas previously the main line they followed — apart from the Ecole Normale Supérieure (Higher Teacher Training College) — was that of learning their work on the job, starting with the supervision of school study by monitors. During their higher education course new teachers now learned the history of literature they were to go through with their pupils.

The general inspectorate was no obstacle to this evolution, because there was close osmosis between it and higher education, some university professors becoming inspectors for a few years or vice-versa. The professional environment, where there was some resistance to the new teaching system, changed very rapidly (large-scale recruitment proved to be necessary following on the previous haphazard recruitment policy), and it furthermore underwent convergent pressures from higher education, public opinion and republican circles. The whole of teaching process changed as a result : lessons became lectures both in content and in form ; the pupils' work consisted in taking notes and learning lessons quite as much as in preparing exercises. In short, classroom work was not at all what it had been.

This example shows what a real teaching reform represents and only apparently diverts us from our argument. The reform required today is in fact of much the same kind. The whole of the education system must find a new balance in order to meet the major changes that have taken place in pupils.

Indeed, if there is a crisis in the education system, it is because pupils have changed. Their number — that is to say their social origin and cultural level, has changed. But there has also been a change in what they expect of the school system both intellectually (they expect less because there are other sources of knowledge) and emotionally. They are accustomed to a certain type of relationship towards adults which is not the same as that in which their teachers were brought up. Hence, the need for a general readjustment of the system.

We might press our analysis further and note that every evolution of society as a whole is immediately transmitted to pupils. In the diagram on page 52 "public opinion" should in fact have an arrow connecting it with "pupils". The pupils are plunged into society by their parents, but also by the mass media. On the other hand, society cannot directly influence the other components of the education system.

From this point of view, a closer institutionalised analysis of school systems is required. Not only is there a major difference which contrasts centralised systems, like that in France, with decentralised systems, like that in the United Kingdom, but that distinction still fails to take full account either of the flexibility of the latter or of the rigidity of the former. The flexibility of an education system in fact depends not so much on whether decisions are taken centrally or not, as on the number of decision centres responsible for the various elements in the system. The point that most strikes a foreign observer about the British system is the variety of decision making centres. The work done in schools, for example, is essentially a matter for the school, and the Local Education Authorities and the Department of Education and Science play only a very limited role. Matters concerning teachers' careers are partly in the hands of those responsible for each school in so far as promotion within the school is possible. More often, however, promotion entails a change of school, and this is not as in France a matter for decision at national level because each school recruits its own teachers. Teacher training is the responsibility of colleges of education or of specialised university departments which are independent both of local authorities and of the schools. Thus the school system does not present a united front to public opinion.

The French system, on the other hand, is characterised not only by decision-making at national level but by the concentration of powers in the same hands. One could conceive of a national system for defining tasks and alongside it an independent department for training teachers, while a third body might be concerned with promotions and careers. In fact, everything is concentrated in the hands of the Minister and, officially at least, of the inspectorate. It is the latter body in fact that defines tasks when drawing up syllabuses and instructions. It also recruits teachers (particularly at the practical test level of the CAPES where its

opinion carries the greatest weight) and determines their careers on the basis of inspection. Finally, it has the last word to say in their training because the only thing that exists at present — practice in schools — consists in placing new teachers in the charge of teaching advisers chosen by the inspectorate — or its regional representatives — from among senior teachers considered suitable for this responsibility. Such concentration of powers in the same hands is obviously a factor making for a coherent school system. Nowadays it gives it a dangerous rigidity. That is why it seems to me absolutely essential, as proposed in the Joxe report, to give back to the schools the power to decide on the work to be done and to entrust teacher training to authorities outside the inspectorate.

This analysis, which attaches greater importance to the number of decision-making centres than to the level at which decisions are taken, is counter-proved in the case of Switzerland, or to be more precise in some Swiss Cantons. In Switzerland in fact there is a really decentralised system, but in some cantons all decisions lie in the same hands, so that the system may be quite as rigid locally as the French system.

Teacher training

If we now concentrate our attention on teachers, the foregoing brief analysis of the education system explains the ineffectiveness of most reforms introduced in teacher training.

Too often, in fact, changes in teacher training are not accompanied by parallel changes in the other factors that influence teachers : in particular the professional milieu and the administrative authorities.

Tension is inevitable between training and the professional environment. Training annually introduces a new set of teachers into the professional milieu, but they are in a minority : a few only in each school. However effective their training may have been, this is not always appreciated by the professionals, who consider it theoretical, and always welcome new colleagues by saying more or less openly : "Now you are really going to learn your job". If then the innovations suggested to young teachers during their training encounter hostility in the professionals, there is little chance of their being introduced into actual teaching. This is one reason why it seems absolutely necessary to link permanent in-service training for established teachers closely with the initial training of beginners. The dissociation which is common in many countries and is proposed in England in the James Report is a source of future conflict.

Similarly, conflict between trainers and administrators is permanent, and almost a part of the system. There is no need to dwell on it. Administrators who are responsible for the careers of teachers give preference to experience and accord greater importance to the personal qualities of the teacher than to his high professional standard. They are anxious for integrated training and fear excessive specialisation, which they consider makes the teacher more interested in his subject than in his pupils. Trainers, on the other hand, in all countries are anxious to have their activities recognised as academic activities in the full sense of the term. They are thus inclined to raise the standard of training they provide and to increase the scholarly demands of their teaching. The evolution of certain colleges of education in England illustrates this aspiration : the integration of certain teachers of specific subjects with the staff of neighbouring universities and the conditions for B. Ed degrees which the James Report sometimes finds wasteful (3) indicate the desire of colleges of education to be entirely autonomous establishments (4). The trend in Germany is not very different.

In many cases then, reforms in teacher training are not basically inspired by a clear desire for change in teaching techniques because this is generally recognised as urgent and necessary, and because trainers might feel obliged to bring it into effect. The reforms more often express the trainers' idea of their own activities. This is as much concerned with defending the interests of the teacher trainer group as with discerning the needs of schools. That is quite natural : every group has the right to defend its group's interests, or what it believes to be such. But in so far as the transformation of teaching techniques is just a pretext, a seeming justification, it is no wonder that its effectiveness is limited.

It would be too simple, however, to stop short at this analysis. Supposing that indeed a reform of training is actually aimed at producing new behaviour in the classroom, it would encounter specific obstacles which we must analyse more fully.

Educationalists' illusions

If it is to achieve any change in teaching, training must affect the deep-rooted attitudes of teachers, their personality. What is important is how they get on with their pupils, the way they react to their inertia, their aggressiveness or divergent in-

terests. But in actual classroom situations teachers react immediately and spontaneously. Training must be an education of attitudes and not merely an acquisition of knowledge, however indispensable.

Such an ambition encounters enormous difficulties, because as often as not teachers' training affects only their opinion, their way of thinking, their educational beliefs, but in no way changes their behaviour. Everything goes on as if there were some sort of dissociation between what teachers believe themselves to be and what they actually are. At least two empirical studies bear witness to the extent of this dissociation.

The first is that by Professor G. de Landsheere, who analysed the behaviour of teachers according to a very careful grid (5) prepared on the basis of the work of a number of American researchers, particularly M. Hughes. Distinguishing between the various functions of the teacher and assessing the precise importance of each in practice, de Landsheere observes that the functions of "imposing" and "organising" are far ahead of all the others and particularly of "concretising" or "personalising". These indisputable results contradict the official ideology of the Belgian school system which is anxious to focus much more closely on the child. It is not the analytical instrument used that is responsible for the result because the same grid applied to teachers using the Freinet method gives a slightly higher number of actions related to the organising of the work of the class but far fewer imposing actions. There is then a discrepancy between the ideology of the school system — particularly the ideology prevailing in training colleges — and the actual practice of teachers in their classes.

An Israeli research worker, A. Abraham, reaches conclusions tending in the same direction (6) by analysing the image teachers have of themselves. She finds in fact that teachers describe themselves as having the features of an ideal and stereotyped model, and not as they really are. The replies to her test — I shall not deal with her method, which offers quite adequate safeguards — show a very slight variation from one teacher to another. In particular, correlation is almost perfect (.95) between the two portraits : that of the ideal teacher and that of the real teacher, between the way in which teachers describe themselves and their idea of the "good" teacher. In both cases the positive features (what a teacher is) are more generally agreed upon than the negative features (what he is not). In short, A. Abraham concludes that there is a kind of specific alienation among teachers. One can imagine the full consequences. Since teachers are incapable of seeing themselves as they really are (7), they can in all good faith believe that they are pursuing the ideal they set themselves, even if their practice is completely different.

This illusion is certainly not original, and one might think that it is characteristic of the whole human race. Anybody who has sought to change attitudes or behaviour has experienced the difference between what Newman called "notional assent" and real assent. This is a general problem that all preachers — of whatever belief — have met at some time or other.

It does seem, however, that this illusion is more deep-rooted in teaching than in other professions. The point is a delicate one, because the investigation does not directly touch upon what the teacher is. There is what one is (the real self) and what one claims as one's ideal (the ideal self). The real self is not revealed directly by the investigation. We are thus obliged to base our arguments on the difference between the image of the real self and the ideal self. If these coincide, we are entitled to think that the individual is mystified and incapable of seeing himself as he really is. If on the other hand, there is quite a difference between the ideal self and the image of the real self, it may be presumed that the image of the real self is more truthful and that the individual accepts himself as he really is. On the evidence of American studies. A. Abraham shows that among nurses discrepancy between the real self and the image of the real self increases with seniority. Among American teachers, on the other hand, it decreases, which might be explained by a regression similar to that analysed by Professor H. Aebli. Among Israeli teachers the discrepancy does not alter with seniority, and A. Abraham interprets this as the result of an active policy of supporting established teachers. It would appear then that normally, without in-service training, teachers become increasingly subject to self-delusion and less and less able to see themselves as they really are.

Further comparative studies of the same kind would be necessary to establish just how far such self-delusion is peculiar to the teaching profession. It is possible however, along with A. Abraham, to list certain factors peculiar to the profession that seem likely to affect teachers' personalities and to dissociate the ideal image from the true image. First of all, in the eyes of his pupils the teacher

represents society. This obliges him to incarnate certain values. As an adult dealing with children, it is more difficult for him to accept himself as he is without having a feeling that he is losing face. Finally, A. Abraham attributes some importance to the feminisation of the teaching profession in all countries and to the fact that, everywhere, the educational powers that be remain masculine. Although her argument may seem open to dispute, it is impossible that this feminisation, which generally goes unremarked and is the subject of very few studies, should not have some effect on the problems we are discussing.

In any case, these observations make us ask ourselves a certain number of unpleasant questions. Let me mention just one, which seems to offer a significant example. The survey commissioned from COFREMCA by the Joxe Committee in France disclosed the existence among secondary school teachers of a surprising consensus of opinion in favour of modern methods. Seventy-seven per cent of them found that group methods not only produced a more agreeable class atmosphere but led the pupils to work better. Other similar replies seem to justify the conclusion that secondary teachers on the whole support these methods. It would be rash, however, to conclude from this that their teaching is in line with the ideal that they proclaim. The survey deals with opinions. The real attitudes which inspire their behaviour are commonly known to be quite different. French teachers are going through a difficult period, and public opinion as a expressed in the Press largely supports modern methods. The teachers who are ill at ease support the general consensus and profess the popular opinion. Their attitudes and behaviour are not directly affected by this. At most, the fact of holding such opinions may give them a bad conscience about their day-to-day practice.

This example suggests that we must be very cautious about opinion surveys. Very often what Americans in particular analyse as teachers' *attitudes* is, in fact, merely a series of replies to *opinion* polls. There are no doubt links between opinion and attitudes, but they are complex and indirect, and it would be dangerous to draw from opinions conclusions regarding attitudes (8).

This poses the whole problem of teacher training : if it is to be useful, it must result in educational attitudes and not in opinions. With this in mind we must systematically review the components of training that may be suggested.

WHAT KIND OF TRAINING CAN AFFECT PRACTICE ?

The educational sciences

There is generally no need to justify the place given in teacher training to the subjects contributing knowledge about education. We should not, however, accept them without reflection.

The principal justification for educational sciences in teacher training is that they make it possible to establish a strict basis for an approach to education. I shall not discuss here whether those sciences are sufficiently far advanced to justify this ambition. Let us assume that the theory of learning is complete, that the sociology of school groups and the psychology of adolescents are sufficiently well developed for it to be possible to derive an approach to teaching from them. The whole problem that arises then is the relationship between *knowledge* and *experience*. Indisputably the content of the educational sciences is linked with actual class experience. The question is whether the one can modify the other.

Empirical studies on this point are lacking. I am inclined to feel sceptical. I am quite clear in my own mind about what history of education or comparative education I could teach future teachers. I think that would be interesting for them and would help their general training. But I do not see what this could change in their actual teaching. It would be a part of university training in the same way as political history or economics. It would not be professional training proper.

It would be quite different if this knowledge were geared to practical teaching experience. Then, indeed, the educational sciences could answer the questions that teachers ask themselves. They would make it possible to situate experience in a wider context, to know its ins and outs and thereby to structure it, foster it and give it personal depth. It seems to me that this is the reasoning that inspired the James Report to postpone the study of the educational sciences until in-service training courses.

We must not be misled here by the longstanding attention paid to the educational sciences in teacher training courses in England or in training colleges for primary teachers in France or in Germany. It is well known that the development of these subjects is the result of the transformation of an education which was originaliy moral and religious. With the secularisation of our societies, what once was religious training became moral exhortation, then

increasingly scientific treatise because of its borrowings from the mother sciences of sociology, psychology etc. But we have failed to notice that in this progressive secularisation, we have been neglecting precisely those exercises which can make religious or moral exhortation effective at the level of personality. Sermons, whether Catholic or Protestant, or the Kantian moralising of Ferdinand Buisson, have rarely resulted in conversions — that is to say in real changes of attitude — without prayers, meditation and group fervour. Prayer is the moment of silence which used to give the novice a chance to absorb the words that had been said to him, to make them his own, to deduce from them some consequences for his life — something that nobody can do on behalf of another. Science is true, no doubt. It would be naïve to think that knowledge of the truth in itself brings about a change in behaviour. That intellectual illusion, however, underlies many training courses, not only in the teaching world.

This is one more major reason to adduce against the educational sciences in an initial training programme (before any concrete experience of teaching). It applies also to other features of training, with which we shall be dealing. Let it suffice here to note in passing that to our great surprise in France student teachers, whose expectations of their training we have systematically explored (9), have not shown much interest in acquiring such knowledge, the need for which at this stage of their development (before practice teaching in classes) is not strongly felt. They are much more anxious for practical training which can be given immediate application in the classroom. This is, indeed, the second component of most courses.

Classroom practice

Whether this be called "classroom practice", "practical teaching" or "didactics", we find in many countries courses which aim at teaching students how to teach a particular subject at a particular level. The value of such teaching is not to be denied. It is important for future teachers to be warned of the special difficulties they will encounter and of how they can be overcome.

It would, however, be a grave miscalculation to count too much on this instruction. Insufficient attention is paid to the function it will fulfil in the young teacher's personal balance. It is primarily a safety factor. Contact with the class is usually awaited with very keen apprehension or even real anxiety. These sentiments are usually repressed or frowned upon, and it is seldom that they find expression. Their reality and intensity seem to me undeniable (10). If we can convince teachers that they will be able to take a class because they have been taught how to do so — even if it is not true — we are giving them inner support to offset their apprehension.

This safety factor is not in itself open to criticism. Teachers must be made capable of tackling a class and their need to feel secure is not to be either ignored or disdained. The way in which that need is met, on the other hand calls for some reflection. The professional competence of teachers is, and will be, increasingly disputed by their pupils, either explicitly ("you don't explain clearly") or implicitly by rowdy behaviour or — even worse — apathy. If such tensions are met in advance by bolstering up the teachers idea of himself, the crisis will be the graver for being temporarily obscured. The more the teacher is persuaded that he is professionally competent, that he knows the right way to teach because he has learned it from experts in the theory of learning or in epistemology or didactics, the more disastrous his failure is likely to be. It is true that such training should help to avoid failures due to lack of skill, but it cannot eliminate failure when faced with the class, because this depends more generally on the social context and on the growth of the adolescent personality. It seems to me, then, that future teachers must be forearmed, but we must beware of making them feel that their competence will guarantee success. It is better to teach them to put up with some anxiety and to live with their problems without being overcome by them.

Educational advice

Indeed this learning by exchange whereby each student teacher can adapt to his new situation and find his balance is seen by many authors as the key to effective teacher training. The probation period with responsibility, as suggested in France at the Amiens colloquium, links up on this point with the proposals of the James Report for the second year of the second cycle of training.

In France, training of this kind has existed for more than twenty years, for certificated teachers. After succeeding in a competitive written examination incoming teachers teach for three periods of ten weeks in the classes of three teachers called "pedagogical advisers" or "professional tutors". In each class, they observe the adviser teaching. Then they themselves take lessons.

It so happens that for two years, thanks to the

understanding and help of the Director of the Centre pédagogique régional at Orléans, Mr. R. Gitton, I have had an opportunity of working with student-teachers and some of their advisers, and of experimenting with further training. I am therefore in a position to make some observations on this system which also have been, or will be, embodied in more detailed reports.

Certainly, the pedagogical adviser is in a good position to see what the beginner is doing and to note what is satisfactory in his teaching and what is not. His comments are probably made from the point of view of traditional teaching methods and perhaps one might criticise them for throwing very little new light. But, apart from the fact that this is not always so, even a traditional comment might be helpful to a beginner.

Unfortunately, the adviser's observations and the advice that he might give on the strength of them are absolutely *incommunicable*. Many advisers do not even try to communicate them. Others make the attempt and at best are listened to politely and at worst rejected. In any event, the advice and opinions are not accepted.

This situation, however disappointing it may be, is easily explained. As soon as any advice or opinion, or even a mere observation, involves the personality of the person to whom it is given, its acceptance means, primarily, for him, that he agrees to look critically at himself. It requires much adaptability and humility to accept advice and that is an attitude which cannot be imposed on learners, who are there, full of good will but, after all, because they are ordered to be there. Moreover, in all the surveys we have made among student teachers, the ability to criticise oneself comes regularly last in the order of qualities they think necessary for a good teacher.

To overcome this fundamental obstacle and enable young teachers to see how useful it would be for them to accept advice, or, more correctly, to look critically at their own personality, that is to say their relationship with their pupils and with other people in general, would require a warm and two-way human relationship. But the relationship between student-teacher and adviser is inevitably one of conflict.

First of all the adviser is in a position of seniority in relation to the student which paralyses communication between them — not so much because of the seniority as because the adviser may be a member of the panel which will eventually decide on the student's recruitment and because, in any case, he will be obliged to report to the panel. An outside observer would be quite certain that the presence of advisers on such panels is, in fact, a safeguard for the student teachers and that their advisers are almost always on their side and not against them. Nonetheless, trainees usually see the adviser as a judge, rather than as a friend. However rotund, jovial, benevolent and friendly he may be the adviser is always regarded as a possible threat. He may become dangerous. This prevents any criticism that the trainees might be tempted to make to him from overstepping a certain limit and destroys all symmetry in a relationship which cannot be entirely reciprocal. And yet the trainees' comments on the adviser are sometimes quite as pertinent as observations from the other side.

This analysis raises a tremendous problem : that of the relationship between training and recruitment and between advice and judgment. Undoubtedly, advisers are in the best position to assess the worth of a student teacher, if they are well selected. There is a temptation to appeal to them for a decision as to whether to recruit a young teacher or not. But to make the adviser act as judge, is to exclude him from the role of adviser, since any exchange between him and the trainee is prevented. A choice has to be made, therefore, because all the intermediate solutions present the disadvantages without the advantages. One can either give advisers the opportunity of really helping beginners, in which case they must have nothing to do with recruitment decisions, or else they may be asked to play a part in recruitment, but then the practice period is merely a test and not a period of training. I personally think that it is preferable to dissociate advice and recruitment.

That, however, is not enough to solve all the problems. Even apart from the connotations given to it by the participation of advisers in recruitment, the relationship between them and the trainees is fraught with hidden difficulties. It is a relationship that the adviser cannot assume naturally. The presence of trainees in his class is a distraction, and it cannot be otherwise as long as it is not normal practice to have more than one teacher in a classroom. The adviser is inclined to think that students fresh from university know more about the subject than he does, and he avoids certain areas where he fears he may run into difficulties. The adviser is either too sure of himself and leans too heavily on the experience of which he considers himself the mouthpiece or he says very little and his silence causes anxiety. He is put in a position where he must say something and, as soon as he speaks, he exposes himself to the risk of not being listened to.

The trainee for his part is prisoner of his situation. First of all, the class is not really his but the adviser's. The result is that all advice given has an element of uncertainty : what fails with the adviser's pupils might perhaps succeed if the trainee had his own class, but he hesitates to experiment in an environment where he is not in complete control of the situation. Moreover, the trainee is usually considerably younger than the adviser. Hence a certain complicity with the pupils may arise, because contact may be easier and in any case it is made in a different way.

This false relationship is nevertheless put up with by dint of much politeness and because the trainees do not stay with the same adviser the whole year. In the best of cases, a kind of paternalistic exchange may develop. In others, adviser and trainee act as if they were simply colleagues. Sometimes an adviser gives too much advice and conflict arises. In any case, the purpose of the training is not achieved. The reflection that it was desired to stimulate in the trainee about the best way of teaching a class does not occur. Each one firmly stands his ground.

The "self-learning" group (A. Abraham)

In any case the relationship between adviser and trainee cannot be an easy and natural relationship as long as it is an exceptional one. In a school system where each teacher is second only to God in his classroom, any situation where teachers are asked to discuss their classes will inevitably seem artificial. The reasons found for it are bound to be ominous. And how can a beginner be expected to criticise his own behaviour, if he is the only one in the school to do so ? How can he fail to regard this initiation period as a kind of persecution, when he sees around him so many colleagues, inspectors, administrators or senior teachers who really ought seriously to look at themselves critically and are quite obviously incapable of doing so ? The problem of beginners learning their trade in the classroom can only be solved if it is recognised that all teachers throughout their professional life be required to relearn a job which is continually changing.

For this reason I would propose setting up reflection groups on the teaching process, similar to those tried out by A. Abraham in Israel or, mutatis mutandis, by Dr. M. Balint for the training of doctors (11). These groups, I think, must have three basic characteristics.

— First of all they are groups — that is to say we have a collective and not individual situation. This makes it possible to avoid the snares of individual relationships.

— Secondly, these groups must comprise both learners and experienced teachers. The latter probably being more numerous. They must not be an exceptional measure for initial training purposes but a normal part of school life. Here we are in line with the analysis of the teaching system attempted above, in desiring that training should not be dissociated from the evolution of the professional milieu as a whole.

— Lastly, and most important, these groups must be organised and conducted in a very special manner. The objectives assigned to them are, in fact, complex and original. They must create an atmosphere that is calm and friendly enough to teachers to be able to find support and security there. Then again what takes place in the classroom must be frankly discussed and thought about so that each is able to ask himself (not necessarily ask the group, if he is reluctant to do so) the real questions that will help him to improve. A situation must be created in which each individual will agree to look critically at himself, and this is possible only if he is sure of not being put on trial. Real discoveries, those which count at the personality level are those one makes for oneself. The aim of a "self-learning" group is not to tell people home truths about themselves, but to create an atmosphere that will induce each to discover those truths for himself. The existence of a "permissive atmosphere", in which each individual feels fully accepted and recognised, free to keep quiet or say what he wishes to say, to express his feelings and not only his ideas, is a security factor which facilitates self-knowledge

This makes it absolutely essential for the group not to have been set up officially to represent an educational ideal. If there is a revealed truth that can be imported from outside there is no need to look any further for it. It is essential to have in such a group a discussion leader to guide it to some extent, to facilitate discussion in depth and to prevent it from getting off the track. The organiser should model his behaviour on Rogerian principles or on those very succinctly summed up by Dr. Balint in his work on training.

In my view such groups, if conducted with care and discernement, could render great service. Obviously they would be a strong stimulus to team-teaching. They would also give psychological support to teachers who require it. They would form

a network both for stimulating teaching and for initial and further training, and they would make it possible to use in good conditions familiar techniques which are, however, not free of risk, such as teaching with television.

Such groups, however, fall far short of meeting all training problems. It is possible, I think, to propose other means of overcoming the contradiction between opinions and behaviour and of giving teachers the kind of training that changes their classroom practice.

Personality training

We might look first of all for exercises designed to shape directly the personality of future teachers. Many precautions must, of course, be taken to prevent such techniques from becoming manipulatory, to prevent them from breaking down personalities rather than developing them. But we cannot neglect the contributions of practical psychology. T groups do exist. It is known what is to be expected of them. Other less drastic techniques have been tried out (12) which seek to develop the personality by stimulating observation and the reflexive analysis of relationship phenomena. In short, there is a whole area of training that seems undeserving of the criticisms we have levelled at purely intellectual training, since it is concerned with modifying attitudes and not opinions.

This type of training is irreplaceable. It gives an opportunity of developing attentiveness to others and a capacity to perceive their reactions instantaneously. It teaches people how to see their own reactions objectively, to control their own affective level, to control their emotions. This education in relationships is one of the only ways of arming future teachers against *reactional* behaviour towards which one can so easily be swayed by the aggressiveness or indifference of pupils. This is a part of character training which it would be very wrong to disregard. Even though the exercises practised are only remotely related to the classroom, the qualities they can develop are essential, and we must not hesitate to make use of this kind of training, without dogmaticism or prejudice.

Research as training

I shall not dwell on such training any longer, because it seems to be generally accepted, and I should like to devote the end of this paper to a more venturous proposal. In my view some participation in educational research is an essential component of teacher training.

I am not, of course, thinking of just any kind of research. The only kind which seems to me to have any training value is that dealing with pupils, their levels of attainment, their affective development, their attitudes in relation to any particular branch of teaching. Research into school systems, their sociology, child psychology for its own sake, the history or economics of education are all open to the criticisms made above of the educational sciences.

On the other hand, research centred on the effects on pupils of certain teaching techniques seems to me to solve one of the central problems I am seeking to bring out here : teachers' illusions, or the dissociation of thinking and behaviour. The difficulty arises from the fact that the teachers are not what they believe themselves to be, and it is very difficult to get them to recognise what they actually are. One of the sources of this mistaken view of themselves is that for both parents and inspectors, as well as for teachers themselves, what counts is what the teacher does, the personage he incarnates, the role he plays. There is a deep-seated pedagogical narcissism here, with all professions exercised in public. One is playing a part and the approval of the spectators is one of the chief rewards for the work done (13).

It is essential to react against such narcissism because it is the main obstacle to pupil-centred teaching. It must be strongly emphasised that teaching is designed for the pupils and that if it is to be judged, it must be judged by the pupils' results rather than by the teacher's performance. A good doctor is one who cures his patients. A good teacher is to be judged not by his apparent skill but by his pupils' results.

The problem here is that it is difficult to judge pupils' results. What results? Knowledge acquired? Personal maturation ? Enthusiasm for life, adjustment to society ? And what standards are we to use ? How can we compare what pupils were before the teacher took over and what they become afterwards, when the teacher's action cannot be dissociated from innumerable other factors. The problem seems insoluble methodologically, and one may be tempted to direct educational research towards less difficult areas.

If, however, we consider this kind of research not from the scientific angle but from the viewpoint of its consequence for the personal attitudes of those who engage in it, our appreciation of it changes. If

trainee teachers are closely associated with research on the effectiveness of teaching, they will be obliged to formulate their method problems from the angle of the pupils. This is a basic and formative step, even though its results are scientifically disappointing.

We cannot here avoid situating this type of training by research in relation to the performance-based teacher education courses (PBTE) which are one of the most important innovations in teacher training in the United States. The suggestion made here is inspired by a principle similar to that of PBTE, namely that what is formative is to set oneself an objective and assess the extent to which it is achieved. But the performance with which PBTE is most frequently concerned is that of the teacher. The objective that is set is frequently a specific type of teacher behaviour, which is more easily observed than pupil behaviour. Thus frequently, like micro-teaching, PBTE can increase pedagogical narcissism, whereas on the contrary it needs to be overcome.

It is in any case open to doubt whether such techniques are effective, as long as the basic attitudes of teachers remain unchanged. G. de Landsheere, for example, has endeavoured to train teachers to practice specific feedback responses, in preference to stereo-typed feedbacks. He has found that after training the proportion of specific responses is higher at the beginning of the lesson, but that twenty minutes later it drops to the former level. The fact is that such a practice as this is deeply rooted in a network of personal attitudes that training has not changed. It would take longer, but would perhaps be more effective, to persuade these teachers to ask themselves about the consequences of the one and the other response and to try to evaluate them.

This formative research makes it possible at all events to reconcile two imperatives that are often contradictory. On the one hand, it makes it possible to respect the pedagogical choices of trainee teachers since it imposes no model on them. Each one can choose his own objectives, which may be very varied : acquisition of knowledge, mastery of operational know-how, development of creativity, forms of social adjustment, etc. The only thing that is imposed — but this it is not only our right but our duty to impose — is that they should care about the effects on pupils of the way they teach. This introduces the central principle of any democratic teaching, which is respect for the pupils and freedom for the teachers.

At the same time, this move is an invitation to experience teaching not as a vocation, a kind of priesthood which exalts the priest or his God, but as a trade, that is to say a service provided for the pupils who are its users. On this point I am completely in agreement with the arguments of S. Marklund on the need to de-professionalise teaching. There is perhaps no better way of contributing to this than to teach teachers to look at their pupils otherwise than through the distorting lens of their own goodwill or illusions.

At the end of this too lengthy paper, it would not be without value to sum up its major arguments.

Teaching is confronted with a new situation, and the power behind its transformation is the evolution of pupils. If the teaching process has to be reformed, it is because pupils have changed and will go on changing radically.

The problem of teacher training in these conditions is then primarily one of training teachers who are capable of developing a new type of pedagogical relationship with these pupils. This relationship cannot yet be clearly discerned. One thing, however, is certain : teachers will not be able to preserve their former magisterial assurance. Their knowledge and professional competence will not protect them from personal clashes.

The best way of preparing teachers to face this new situation is not to provide them with heavier armour by giving them the false security of acquired teaching skill, likely to collapse at the first shock, but to teach them to live with their problems and tensions and to enable them to recognise their own affectivity and that of others and to rise above it. In short, it is to educate them as people capable of relationships.

This conception makes it logical to postpone the study of the educational sciences until after initial training, to restrict didactic teaching and to develop on the one hand "self-learning" groups, and on the other research by future teachers into the effects on pupils of the way they teach.

There is, however, one much more important consequence of these premisses. If I prefer to make a clean break with everything in teacher training that constitutes an analysis of the teacher and his behaviour, it is because it is impossible to introduce pupil-centred teaching when one is interested in the teachers. That is an insuperable contradiction in terms.

Similarly, but more radically, if we are to conceive the training of teachers as the education of persons

capable of relationships, we are obliged to challenge the structure of training centres inasmuch as they are networks of relationships. The relational nature of the training centre is necessarily regarded by those who are trained there as the archetype of the educational relationships they will be obliged to form. One of the most serious problems now raised in France for the mathematics teaching research institute is that of providing the indispensable refresher courses for mathematics teachers in the most traditionally magisterial educational framework, thereby holding up to the teachers a pattern that is in dispute and unsuitable in their own classrooms.

Perhaps in the long run the most important thinking that needs to be done by administrators, organisers and teachers concerned with teacher training is about the type of relationship that exists between themselves and the teachers they are training. Can such relationships be transposed to the classroom ? What is their effect on the attitudes and behaviour of the outgoing teachers ?

Here we come back to our original question. If it is true that the best way of making progress is to question the results of one's action, if it is true that research into the effectiveness of teaching techniques as far as the pupils are concerned is one of the corner-stones of teacher training, the same reasoning applies to training centres, and trainers must be questioned about their own effectiveness. Hence, however disturbing and disagreeable it may be, there is no question more important than that of whether the training of teachers really changes the way they teach. Although it is scarcely likely that research along these lines will produce any speedy results, I shall not be displeased if I have sown some seeds of uneasiness : there is no better leaven.

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(7) In the enquiry carried out by means of non-directive interviews preparatory to the survey commissioned in France from COFREMCA by the Joxe Committee, it was found that the teachers interviewed strongly objected to speaking of themselves otherwise than in intellectual, abstract and universally applicable terms.

(8) Cf. the problems raised by the Minnesota Teachers Attitude Inventory (MTAI). LOREE, Ray : "Shaping teachers' attitudes", in SMITH B. Othanel (ed.) (1971) : *Research in teacher education*. Englewood Cliffs, N. J., Prentice Hall, 166 p.

(9) Report prepared for UNESCO to appear shortly with its permission in the *Revue Française de Pédagogie* No. 3/1973.

(10) Anxiety is manifested whenever projective exercises are performed with teachers. We found particularly clear examples of this in brain-storming exercises carried out by experienced teachers known to be successful with their pupils. Other examples were apparent during interviews with teachers on the theme of the first contact.

(11) BALINT, Michael (1970) : *Le médecin, son malade et la maladie*. Paris, Payot, 422 p. See in particular pp. 315-333, Appendix I : "La formation".

(12) I have myself worked out and tried out exercises of this type with practising teachers, and I am also trying them with student teachers. These very varied exercises cannot be described here. They are based on studies by Rogers, Porter, Mucchieli, etc.

(13) Here we are in complete agreement with the analyses by Raymond LALLEZ in a report prepared for OECD : *Conditions favourable to 'innovation in education : an analysis of the fundamental factors in the recruitment and training of persons responsible for teaching*. Roneoed document, 54 p., 2 December 1971. No. DAS/EID/71.86.

From studying education to teaching a class: Problems of transition

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This paper treats the problems of transition that occur when the student teacher, having completed his professional training, leaves his training institution and takes over responsibilities in a school. Studying this transition process, we shall have to direct our attention equally to the antecedent and to the consequent stages, to the training experienced by the student and to the problems he meets as he becomes a fully qualified teacher. It is therefore not just the problem of "induction into teaching" that we shall consider. Besides, I should not have dared to treat such a problem at the University of Bristol, where so many eminent experts on induction are at work. Moreover, problems of induction depend so much on local — which at a European conference means "national" — conditions in schools that it would have been very hard to say anything meaningful to all members of this group. On the other hand, if we consider both ends of the teaching process, the giving and the receiving, it may be possible to discover some invariant and ubiquitous relationships — and that is what science and research look for.

So much by way of introductory remarks. Let me now tell you what the basis of my reflections will be. For many years, I have taught psychology and teaching methods — "general didactics" we say on the Continent — to future primary teachers, and I have visited our students regularly during their teaching practice periods in schools of the Canton of Zurich, Switzerland. Interpreting the research which I shall mention shortly, I shall draw on what I observed there. Later, I taught and still teach future secondary teachers at the Universities of Zurich and Berne. Doing so, I was and still am my own subject, as I try to find what can most usefully be taught to future secondary teachers. The hard core of my paper, however, comes from the research on teacher attitudes which I initiated in 1966, when the Centre for Educational Research was set up at the newly-founded University of Constance, Germany.

In interpreting the results we got there, I shall also draw on some observations which I made as a member of the Psychology Department of the Free University of Berlin, a place well fitted to study progressive educational ideas. Finally, there is a programme for training teachers' teachers at the University of Berne, which we are currently developing and, inconsequence, we are called to consider what a teachers' teacher should be taught, and the teacher training curriculum. Some of my propositions will come from this work.

I shall start by summarizing a few results that we obtained during our analysis in the Land of Baden-Württemberg of student teacher and teacher attitudes and their stability. In trying to interpret these facts, I shall make two comparisons. On the one hand, I shall compare current official and informal, ideology in higher education circles in the Federal Republic of Germany — and partly in Switzerland — with educational ideas and practice prevailing in the population and schools at large ; on the other hand, I shall compare the nature of the learning situations experienced by student teachers at their training institutions, especially at the universities, with the nature of the teaching situations, where the students are expected to maintain the attitudes acquired and to apply the insights gained, whilst students. This will lead to an attempt at explaining the regression phenomena which we found. Finally, I shall deduce some positive propositions from the situation as diagnosed. They pertain to the teaching — content and spirit — of education for future teachers and to their induction into practical school work.

During the discussion period at the end of this lecture, I could specify the courses that should be offered during academic training, during a probationary period and in continued in-service training of teachers (see Appendix). If the point comes up in the discussion, I would also be ready to say a few words on how I think teacher and teacher training research should and should not be conceived and conducted (see Appendix).

Regression in teacher attitudes after termination of academic training and start of actual teaching

Even if teacher training does not aim at revolutionizing schools and society, it will at least aim at improving some aspects of prevailing conditions. On what factors or dispositions in the teacher does such improvement depend? Partly on his skills, knowledge and operational abilities. But these are instruments of change : one may or may not use

them. The will to use them is nowadays called an "attitude". Besides instrumental dispositions, attitudes are important determiners of social and educational change. When the Constance Centre for Educational Research was set up, we therefore decided that we should study the development of education-relevant attitudes in student teachers and young teachers. Since attitudes on educational matters are strongly culture-bound and change as political, social and educational issues come and go — think of the environmental (as opposed to nativistic) tide of the last decade — none of the available attitude scales proved usable for our purposes. A new instrument had to be developed. It consisted of 113 Likert-type items, containing statements to be agreed or disagreed with, such as these :

1. At this late stage there remains just one way to achieve the necessary reforms : revolutionary changes. In the face of the demands of modern times, traditional forms of teaching and of school organization must fail.
2. A teacher who punishes his pupils just shows that he is unable to teach in a interesting and motivating way.
3. It is good for pupils to learn already at school that life often requires us to do things which we do not like to do.
4. If the environment were shaped the right way, any child could successfully complete grammar school.
5. Fundamentally, any child can develop a sense for music if only he receives the necessary training and experience.
6. A grammar school teacher should be an educator rather than a subject matter specialist.
7. One cannot expect from a teacher that he should assume responsibility for helping a pupil solve his personal problems.

The scale was used on 1,600 students and young teachers, namely : last year grammar school students (Gymnasiasten), students at colleges of education (Pädagogische Hochschulen), university students (both towards the beginning and end of their university studies), young primary and secondary school teachers in their probationary period, and, as controls, students not aiming at becoming teachers, and young doctors and lawyers. The results were factor analysed and yielded, amongst others, the following four factors :

(a) A factor which can be described as a generally positive (vs. negative) attitude toward educational reform. The first statements cited have a high loading of this factor.

(b) A factor expressing belief in intrinsic (vs. extrinsic) motivation in education and learning. See examples 2 and 3 above.

(c) A factor expressing belief in the effectiveness of environmental and educational (vs. hereditary or maturational) factors in human development and learning. See examples 4 and 5.

(d) A factor which sees the teacher's role primarily as that of an educator as opposed to a role of imparting specialized skills and technical and operational knowledge and abilities. See examples 6 and 7.

The similarity of these attitudinal factors with those described and measured by British authors (Oliver and Butcher 1962, Butcher 1965, Tuppen 1966, Morrison and McIntyre 1967, Crompton 1971) is evident. In particular, Oliver's conservative-radical dimension of attitudes bears similarities with our no. 1 dimension (educational reform), his idealism-naturalism dimension with our no. 4, whereas his tendermindedness factor seems related to our no. 2. Our environmental factor, however, does not seem to have been identified in British — nor to our knowledge — in American research ; not surprisingly, since it is of such recent prominence in psychological and educational debate. Jensen's controversial paper on the native intellectual deficit of US negroes appeared only in 1969, while in Germany the nature-nurture problem and its environmentalist solution received its decisive impulse from Roth's 1969 anthology.

But now for the stability of these attitudes during training and early professional practice. The ideal design for studying such a problem is longitudinal. It would consist in following up the same students and repeatedly assessing and comparing their attitudes. Unfortunately, longitudinal studies take time. The construction of the instrument took several years, and the actual study got under way in 1969/70. The first longitudinal results will be at hand in summer 1973. So we have to content ourselves with quasi-longitudinal results, obtained from different samples, all tested in 1969/70.

Comparison of final year grammar school students with college and university students and with young teachers yields a reversed U-shaped curve. That is, in their last year at the Gymnasium (grammar school) our young people proved relatively conservative. By the end of their academic studies, they showed more progressive attitudes, favourable to educational reform and intrinsic

motivation in teaching and learning, belief in the power of the environment and of education in children's development and seeing their role as that of educators rather than as that of dispensers of specialised skills and knowledge.

And what of the young teachers in their probationary years (two years for primary teachers, 16 months for secondary teachers in Baden-Württemberg)? The progressive attitudes seem to have withered away. In all four dimensions the young teachers were more or less back to where they had been as final year grammar school students. This regression effect held for primary as well as for secondary teachers, and, interestingly, for non-teachers as well (students not intending to become teachers, young doctors and young lawyers). This regression effect has been observed in Great Britain as well as in the US (Butcher 1965, Morrison and McIntyre 1967). As far as we can see, it is new for us to have shown that regression leads back to the exact levels held before entry to higher education, and that the process is not limited to teachers but extends to other professions.

An attempt at interpretation

The problem then arises: how can one explain these results? What causes the regression observed? We start out with a very simple argument. Regression can only take place where there is a discrepancy between the attitudes and beliefs outside and inside institutions of higher education. The more pronounced the discrepancy, the more the scope for regression. Let us examine the matter in more detail.

It is my impression — empirical verification would be most welcome — that educational theory and, more generally, attitudes expressed towards prevailing social and political conditions have become more radical in higher education circles these last years. At German universities, where the middle-aged generation has been numerically weakened as a result of the Second World War, the change of atmosphere in educational and social theory, and even in the most traditional arts and sciences, is especially notable since a young generation of professors and lecturers has taken over. Criticism is radical, and so too are reforms proposed. In many cases, these are no longer directed against circumscribed traits of schools and society: they touch "the system" as a whole, political as well as educational.

Looking at the student sub-culture, one finds the same tendencies, only more pronounced. The students have not invented them; they just take them from the more extreme trends that pervade all higher education. After all, Marcuse, Bloch, Illich or Freire are not students but old men, at least by the students' own standards.

The professed aim is to create a new man and a new society through new schools and a new education. "New" means more rational, more critical, more authentic, more humane. This new man simultaneously relies more on his innate nature and obtains the right awareness through teaching and the right environmental and "systemic" conditions. There is a strong feeling of urgency concerning "innovation", "change", "reform", some would say "revolution". The existing system must be abolished. As for the new one, it is a matter of wait and see.

The same "winds of change" pervade educational theory. Social psychology permeates many areas hitherto untouched. Teaching method, linguistics are cases in point. Part of this movement is extremely valuable and represents real progress; part of it is of lighter weight, rather an effect on atmosphere, more "Lebensgefühl" than substantial insight or practice. On the other hand, purer methodology is sought after in educational theory. Research is done in institutions of teacher training. Educators learn statistics and talk in terms of its concepts. Information theory, cybernetics, game theory make their appearance in the domain of education. There is a general tendency to use a more formalized if not mathematical language. Mathematics itself becomes more fundamental and more general, the spirit of Bourbaki is all-present. These again are very healthy and welcome changes in educational theory. It has gained in stature and status as a consequence. But again, one sees that in part it is losing touch with reality, which still is far too complex to be accounted for by the new formalized languages and concepts.

Attention in educational theory and practice is frequently directed toward observable and rapidly changeable traits of teacher and pupil behaviour. Educational objectives are expressed in operational terms, a very useful exercise, but leading all too often to the definition of superficial aspects of objectives, to an erosion of affective objectives as Bloom (1956) himself puts it. Micro-teaching and its technical counterpart, the video-recorder, act in the same direction, if used in a superficial manner. So does behaviour training as inspired by behaviouristic learning theory. All these trends in education neglect the "deep structures" of behaviour, to extend Chomsky's useful concept, and,

maybe, aim at rapid and easily obtained changes in the surface structures.

If this diagnosis is correct, the following elements of an explanation of regression in teacher attitudes emerge. Criticism of existing schools and of the underlying social and political system has become increasingly sharp. Conditions which the student encounters when he starts his professional career, are described as irreparably bad and ripe for radical change. But the proposals for innovation are of a very general nature, containing little information as to the small steps that the individual teacher can make with his individual class. Extreme environmentalist theories raise great hopes of possible change, and theories on the easy manipulation of surface structures of behaviour reinforce such expectations. For some teachers social psychological theories on educational matters take the place of a solid competence in the more practical and — in part — intellectual aspects of teaching. For some, team-teaching by teachers and teamwork by pupils will automatically solve all teaching method problems : no need to go into such difficulties as understanding concept formation or problem solving ! Methodological purism is fine for the researcher who can prepare his little problem until it has Top Wesselton transparence. But practical problems (and teaching means practical problems) are complex. Pure methods and formalism lead nowhere. What we need is enlightened pragmatism (not blind empiricism), guided by clear ideas and a close familiarity with the many aspects of practical situations. Finally, reality is not changed by polishing its surface. Teacher behaviour which is only styled after some mechanisms in the surface structure will not stand the hard tests of reality.

All this boils down to a simple statement : current educational theory all too often has a curiously ambivalent, if not rejecting, attitude to educational and social reality. It proposes radical changes, without giving the student the instruments, that is, the detailed and practical skills, insights and operational methods to put them into practice. Moreover, in countries like Switzerland, where teaching is rapidly becoming a women's profession, the average period for which young women teachers actually teach is something around two years. It is difficult to create new schools, a new education and a new society with those in the vanguard of progress already having their wedding or their au-pair stay abroad in mind ! More seriously : in many instances, there is a grotesque disproportion between the aspirations of educational theory and actual means, human and other. Where such discrepancies exist, regression is bound to occur when the student meets reality.

There is still another side to the story. We must consider the nature of the learning environment in which the student teacher acquires his attitudes concerning education. It is a verbal and theoretical universe, detached from the 'base' of social realities, as the Marxists would say. Learning is — to a large extent — verbal. Students listen to professors. At best, they write papers and participate in discussions. They learn for examination. True, there is some student teaching. But conditions are seldom realistic. The student is protected by the class teacher, who watches over discipline and prevents any serious methodological mistakes. The student therefore bears little responsibility and does not have to endure the consequences of his actions. Moreover, teachers who accept student teachers have well developed educational super-egos, otherwise they would not have accepted student teachers. It is a common observation that the teacher supervisor tends to present things in an idealistic way, corresponding to his pedagogical creed. There is usually no conscious attempt at deceiving the student, but rather a well-intentioned bias toward presenting the class, its problems, and proposed methods in the most favourable and attractive light. The theories known to prevail in the college or university from which the student comes also play a role : the teacher supervisor tries to prove that he too uses some of the methods or techniques recommended there. All this often works towards unrealistic experiences for the student teacher in his teaching practice periods. Conditions often prove quite different when he takes up teaching himself.

Add to all this the natural limitations of teaching a future teacher all the details that are vital for survival in the classroom. German primary teacher training takes place in institutions that aspire to university status. One consequence is that in the order of prestige courses on teaching practice rank low, theoretical courses high. Courses in teaching practice, practical methodology and similar courses are often divorced from the more academic, university-like courses. Their nature usually is more conservative, but also less inspiring. Broad generalizations, audacious views and new horizons are developed in the lecture room, often *ex cathedra*, by the theorists who are under no obligation to show how all this can be put into practice by an average teacher in an average school. So progressive educational and social attitudes are built up in abstract and verbal terms, often remote from practical application. Their price is not shown to

the student, and there are few or no tests by means of which he can develop the resistance necessary to maintain his ideals against adverse circumstances, and under stress. It all resembles basic military training mainly taking place in the lecture hall or — at best — on carefully prepared and protected practice grounds, and conducted by benign, if somewhat verbose, instructors.

Regression is bound to occur when the student leaves such an environment and when transition to actual school life takes place.

All this pertains to the giving end in the process. Now as to the receiving end. Bolam and Taylor (1972) have given an exhaustive description of the problems and strains that English teachers experience when they leave college or university and start teaching. I should say their description also holds good for German primary teachers and Swiss primary and secondary teachers. Induction conditions and learning opportunities for the German secondary teacher seem to be more favourable. The problems are — in short — these :

1. Students often receive late notice about the school and class to which they are appointed. They have no chance to inform themselves about pupils, their social background and abilities, the syllabus and the manuals used, nor do they have a chance for an advance meeting with the pupils and the teacher whose place they are taking.

2. Quite often, the newcomer is given the most difficult or least able class.

3. Information about the whereabouts and about who is who in the school is not given to the newcomer, nor is he properly introduced to his colleagues.

4. Sources of help, information and material are not indicated to him.

5. Inspectors or advisers often have the double role of helping and assessing the young teachers. The two roles conflict, and in consequence help is less effective. Moreover, young teachers are often unaware of the criteria used to assess them. This leads to feelings of insecurity.

6. The young teacher who has had the moral support of his fellow students at university suddenly finds himself in an isolated position, not seeing his former colleagues any more and having not yet established equivalent contacts within the new school.

Such inadequacies in the way in which many schools receive new staff members add to the stress under which they start their work.

Propositions concerning induction of beginning teachers into their role

The set of measures taken by an institution receiving a new staff member is called 'induction'. Its aim is to make provision for :

— the information needed by the beginner,
— formal and informal contacts with colleagues and superiors,
— a just distribution of tasks within the organisation,
— help or support, especially in situations of emergency.

All these measures tend to minimize the strain or stress for the beginner and to create optimal conditions for his start and early period of work. Induction can thus be viewed as the early and most important phase of corporate support for the member of an institution. Insofar as it comes from the member's superiors, it can be viewed as the early and most important phase of supervision.

The details of the measures to be taken are implicit in the [illegible] short-comings given above. So we follow again Bolam and Taylor (1972), generalizing their statements to a certain degree and making them applicable beyond the British school system to which they refer.

1. The student should receive early notice about the school and class to which he is appointed. Notice one or two months in advance seems optimal. One week is the minimum. It should be made clear to him that it is in his interest as well as his duty to establish contact with the school and his predecessor as soon as he knows which and who they are. These should immediately give him such essential information as the syllabus and manuals used, the stage or point at which he is expected to pick up work in each branch and — in secondary schools — with each class. Individual members of the staff not furnishing the necessary information should be held responsible for their failure to do so. Travel and other expenses for advance visits should be reimbursed, a 'profitable investment' as Bolam and Taylor rightly remark.

2. The beginner should be given a class whose difficulty is proportionate to his competence and strength. Under no circumstances should more competent, more experienced and generally

'stronger' members of the present staff secure for themselves the 'easiest' classes.

3. The beginner should be introduced to the existing staff. He should learn what their functions are and what kind of help they can extend to him.

4. The same holds for other sources of help, information and materials.

5. The question of combining or separating the supporting and assessing role of superiors needs careful study. No simple solution seems to exist. Assessment criteria and, more generally, expectations concerning professional performance should be defined as clearly as possible. This is especially important in the face of controversial educational objectives and methods. Think of problems like discipline, social objectives versus achievement oriented objectives, or methods in reading instruction.

6. Guidance courses, where the beginning teachers of a given region or — for secondary teachers — in a particular type of school or in a given subject or group of subjects are brought together, should be organised.

So much can probably be said in an international setting. Implementation details will vary according to local conditions. Amongst the remaining problems, the definition of the role and skills of the qualifications and the recruitment and training of tutors or advisers for beginning teachers seems paramount. Of equal importance is the problem of the division and co-ordination of roles by the young teacher's different 'parent' organizations. 'Parenthood' is legitimately claimed by the school and its head, the local education authority, the inspectorate, professional organizations of teachers, the college or university from which the young teacher has graduated and by still other local bodies. The problem is : who does what for the young teacher, and who is responsible for what ?

So much for induction into teaching. If it is managed in the right way, it will relieve some of the strain and prevent some of the shocks that can otherwise cause regression in the attitudes and behaviour of the beginning teacher.

On the teacher training

Let us now turn to teacher training such as it takes place within the training institution, the teacher college or the university. We shall work back through the diagnosis we have attempted and develop some positive guide lines for a kind of teacher training less vulnerable to regression.

We have noted the verbal and abstract quality of much teaching at teacher training colleges and universities and its impractical nature. The alternative is not blind pragmatism or empiricism, these terms being taken non-philosophically. The aim should rather be a mutual approach and synthesis of practice and theory. Theory should become more practical, and practice more theoretical. This is easier said than done ! To a large extent, it is merely a problem of quality of teaching : good theories are practical, and good practice is conceptually structured.

Some immediate measures can however be taken. First of all, theoreticians and practitioners at teacher training institutions should get together, learn from each other and try to synthesize their views and concepts. Where this co-operation does not take place through the staff's own initiative, it is the duty of the head of the institution to bring the two parties together. This, in turn, requires that heads have the authority and competence to undertake this task ; in other words, that at least they have sufficient understanding of both the theoretical and practical problems in education and teacher training.

Another requirement is that all theoreticians in education have a background of relevant practical experience, and that a good number of them be former teachers who have continued their studies to become teachers of teachers. This, in turn, requires that teacher training be such that some of the ablest student teachers feel the need and have the confidence to continue their studies at a university. Universities in turn should offer specific programmes for teachers of teachers. At German-speaking universities such programmes exist only at the University of Leipzig (Democratic Republic of Germany) and at the University of Berne — which plainly is not enough. An alternative would be that the teacher training colleges train their own staff, the colleges' status being raised to university level — as are the German ones. This, however, poses new problems, which the scope of this paper does not permit us to explore.

The teaching methods used in teacher training constitute another problem. Verbal learning is not enough. All courses, or at least all the fundamental ones, should be accompanied by practical exercises. Student teaching is but part of such provision, although an important part. Some social work studies, designed to give the student a better understanding of the social background of school learning, should be added. In all this work, as well

as in the more academic type, the student should be given responsibilities, which he should be obliged to take very seriously.

He should not be spared all strain in fulfilling the tasks assumed, for actual teaching will mean more strain, and the student should have built up some strength and resistance by the time he starts teaching. However, the strain should not only pertain to examinations and to preparation for them. It should rather pertain to responsibilities within objective and realistic tasks, like working with a handicapped child or simply making a serious contribution to the teaching of a class as a student teacher. All in all, it is rather a question of the spirit of teacher training than of isolated measures. This spirit should be one of responsibility, with a trait of 'toughmindedness' and not one of playful or tenderminded 'art-for-art' studies. In this way, the scope for regression as the studies end and work in school starts will probably be reduced.

Inherent in all this is the problem of finding the right balance of inspiring ideals and a determination to work for change on the one hand, and on the other of realistic and unbiased appreciation of existing social and educational conditions and of existing means and available forces within the student and the teaching profession as a whole.

This leads us to a last set of reflections. They pertain to the educator's attitude toward conditions existing in schools and to his concept of innovation. To begin with the latter, I should say that there are two fundamental concepts of innovation : the revolutionary and the constructive types, or, subjectively speaking, the conversion and the learning types of personal change. The related attitudes towards reality, whether social, political or educational, are on the one hand, total rejection, and on the other discrimination or discernement. Needless to say, rejection goes with revolutionary and subjective conversion attitudes, discrimination with readiness to be constructive and to learn. Radicalism, purist and one-sided attitudes, and sadly, empty dynamism and a will to reform or to revolutionize without clear and substantial ideas, concepts and methods, in short, radicalism without content, go with revolutionary and conversion types of innovation and with the rejection of social and educational realism. On the other hand, a discriminating attitude tries to see the weaknesses of prevailing conditions as well as those positive forces and elements upon which constructive work can build. A discriminating attitude also means at least partial acceptance of reality, and a balanced view of it. Constructive attitudes, moreover, mean a readiness to reinforce the deep structures of the educators' personality and of his professional competence, and not only such surface structures as can easily be manipulated in a few hours of behaviour training (or therapy) or in a few weekends devoted to group work.

Radical attitudes as here defined, reactions of rejection and vague hopes for inner conversion and outer revolution, all bear the signs of weakness. They become evident in such phenomena as regression and resignation in the face of the demands and pressures of reality. The alternative is an attitude of strength, which means readiness to learn and construct, to accept reality as encountered in schools and society at large, to discriminate and to adopt balanced strategies and solutions. It means readiness to undertake the long trek involved in changing and consolidating the deep structures of man, structures strong enough to withstand the tests of personal history, as when the student teacher starts real teaching, and also in changing and consolidating the deep structures of society so that they are strong enough to withstand the tests of general history.

APPENDIX

A proposal as to the succession of types and contents of learning in the three cycles of primary teacher training

The first cycle covers the academic study of education at an institution of teacher training. The part dedicated to professional, as opposed to general, education should require two years of study (i.e., 72-76 weeks of work, each consisting of 25-30 hours of class work plus 15-20 hours of out of class work). The following percentages of time and effort should go into compulsory courses :

20 % History and philosophy of education, educational psychology and sociology ;

25 % Didactics ; that is, general and subject-bound theory of teaching method ;

20 % Student teaching, individually and in groups, partly under the responsibility of the methodology instructors, partly of practising teachers at application and other schools, partly as block practice, partly concurrent with academic teaching ;

20 % Education in primary school activities such as music, creative arts and gymnastics ;

15 % Continuation courses in general education, partly obligatory, partly optional.

Unlike the James Report (1972), we advocate the retention of the history and philosophy of education, as well as of the more theoretical aspects of psychology and sociology, or philosophy. Their function is to give the student a broad and deepened understanding of himself and of society, and to ensure that his education has fundamental dimensions comparable to those of studies undertaken by the student teacher's former schoolmates who go on to university.

As to the contents, they should touch the essentials of education and teaching. Special topics like library or youth work should be left until the third cycle.

Practice should be limited to the necessary minimum : nine weeks block practice plus a total, equivalent to six weeks, of "distributed practice" concurrent with academic studies seem to be indicated.

The general idea is that training during the first cycle should initiate, and give opportunity for, a type of fundamental learning calling for continuity and concentration, for which the teacher, once he has assumed the responsibilities of his profession, will never again have time and leisure.

The second cycle, lasting for one or two years and ending with the award of the definitive diploma of a qualified teacher, should be under the shared responsibility of the college or university and of the local education authority. No courses offering new content should occur. The accent should be on mastering the problems of practice, and on processing and interpreting the situations and problems met. Opportunity for individual and group discussions should be arranged and individual help be available.

The beginning teacher should have a reduced work load during this period, the reduction being 10 % to 20 %.

The third cycle, continued in-service training, should have three main ingredients :

— Special courses concerning special part-time functions within the school ; examples are library work, youth work, remedial work, counselling, etc. ;

— Special courses pertaining to new developments and problems in education and to the introduction of new means of education ; examples are new mathematics, audio-visual teaching of foreign languages, new techniques in arts, new grammar manuals, and problems of drugs, sex education, and immigrant children ;

— Courses of a general nature taking up problems of theory and of general human significance, treated during the first cycle but often insufficiently or superficially understood and assimilated at that stage ; examples are philosophy of education, Marxism, existentialism, social and economic history, cognitive psychology, Piaget and education, social psychology.

Their aim should be to allow the teacher to remain in contact with the more general currents of the "Zeitgeist" and to help him combat a narrowing of his outlook on human things.

Research on teacher education

If research is to be relevant, it should be based on a thorough knowledge of problems in a given area of education. If such knowledge has not been acquired by the researchers in their previous professional experience as teachers etc., research should start out by an extensive phase of broad and informal study of the problem area.

As it is, research all too often goes head-on into highly specialized and selective collecting of data and their sophisticated processing. The consequence is irrelevance.

However well prepared we may be, we must admit that we do not have, at present, sufficient scientific data upon which to base educational action at the institutional as well as at the individual level. There is still a strong need for broad, practical expertise which, however, should include knowledge of the possibilities of scientific research for use at focal points of analysis and action.

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The technology of teacher education

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Since I wrote this paper and have heard the other papers at this conference, I have realized that I have placed more emphasis than my fellow-speakers on that passage in our brief which says : "it is hoped to identify problems and areas in relation to which new research and development activity might facilitate future action". This paper is accordingly very much orientated to the future.

THE MEANING OF TECHNOLOGY AND THE OBJECTIVES OF TEACHER-EDUCATION

The definition of technology in an educational context

The National Council for Educational Technology of the UK defines educational technology as 'the application of systems, techniques and aids to improve the process of human learning' (1). A Department of Education and Science committee has indicated that this involves three features, namely, "attention to the definition of objectives ; selection and systematic use of the most appropriate and effective techniques and devices ; attention to evaluation of results for the purpose of assessing or modifying the learning programme (2). I realize that some people think of educational technology as primarily a matter of tape-recorders, closed circuit television and projectors. But these are like books and blackboards : they are tools, which have in themselves no significance. The only significance they have is in relation to the purposes for which they are used. It is essential therefore to adopt the wider definition.

The defining of the aims and objectives of teacher education

Aims and objectives in the training of student teachers are too often conceived in terms of cognitive criteria : investigators tend to measure the success of the training by the success of the student in instructing his pupils in information, concepts and academic skills. Too little attention is given to three cardinal factors : the nature of the society in which the teachers will have to work ; the way in which members of professions need to operate in a highly urbanized society ; and the likely evolution of school work. If one is to think in terms of a strategy of development in teacher education over a period of years — say a decade — one is obliged to attempt some assessment of the changes in these spheres over the period. This next section is accordingly a crystal-gazing exercise.

SOCIAL AND EDUCATIONAL DEVELOPMENT WHICH DEFINE THE ROLES OF TEACHERS COLLEGES

Evolution of society : broad features

As regards the kind of society that is likely to

develop, a number of present trends seem certain to continue : the increasing dominance of urban society throughout the world ; the spread of the mass media ; the loss of confidence in inherited values and standards; the weakening of traditional assumptions about the legitimacy of authority ; the revolution of rising expectations ; and the movement towards a plural society. The acceleration of social change to a point where whole populations experience some degree of disorientation has given rise to a phrase that will no doubt gain wide currency : 'future shock'. The emergence of a counter-culture, itself a response to the new situation, could foreshadow a new balance of priorities among values. The British entry into the EEC will exert its own influence in this country. It may be that other movements of opinion will continue to gain momentum and to influence the general climate as well as social policy : the increasing emphasis on positive discrimination towards the underprivileged sections of society, particularly in urban ghettos and areas of rural deprivation ; the increasing concern with the reconstitution of conurbations to improve — to use the current phrase — the 'quality of life' ; and the growing attention to the relation between governmental authorities and the ordinary citizen.

Following these considerations it is necessary to make two further forecasts, regarding the functioning of the professions and the development of the schools.

Preparation for the professions

With regard to the characteristic features of professional work and preparation, it has been convincingly argued by Schein (3) that in a contemporary urbanized society a high proportion of the practitioners in any profession — medicine, architecture, law, teaching and many others — will require five types of understanding and skill. First, there is a grasp of the established principles and information underlying the professional task, learned in such a way as to bring about, in the student's mind, a real interaction and mutual illumination between theory and practice, and to develop his powers of independent judgment. Second, there is a fairly sophisticated understanding of social structure and social forces and the conditions of institutional change. Third, there is some degree of skill in the diagnosis and handling of complex situations or problems not susceptible to solution through a single discipline alone. Fourth, there is an understanding of one's own value-assumptions and priorities, of the exercise of moral judgment, and of the ethical implications of complex social situations. And fifth, there is needed a highly developed skill in collaboration with fellow members of one's own profession, with members of other professions, and with members of the general public ; and a skill in collaboration both vertically and laterally within organisations.

Evolution of school work

The final step in this crystal-gazing exercise is to look at the kinds of educational processes that are likely to prevail in the schools in the above situation, particularly as the period of formal education is gradually extended and adolescents become less receptive to traditional academic studies. First, the work is likely to be much more closely related to the pupils' deep-rooted interests than is usually the case at present, and with interests here I include the world of imagination as well as the concrete world around them. The Plowden Report (Children and their primary schools) has given memorable examples of environmental and other studies that achieve this. Second, there is a picture of a class of pupils working in a number of small groups of up to five or six in size, in a fair degree of independence, a teacher acting as tutor, organiser and consultant rather than simply as instructor. Much of the work is done individually, but the collaborative working in small groups enlists powerful social forces not traditionally used in the classroom. Instruction retains an indispensable function but it is no longer the central core of the work. Third, it seems probable that the classroom scene will be a much less static one : there will be more movement in and out of classrooms, in and out of school libraries and resource centres, in and out of school playgrounds and neighbourhoods, and in and out of places of work and colleges of further education.

The variety and flexibility of learning experiences enable the teacher to adjust his planning, and his demands on the pupils, far more closely to the needs of the individual, and thus both to treat him as a person distinct from other persons and to ensure that he goes out from the class at the end of a year with his conceptual thinking as fully articulated as his ability and experience will allow.

Only in this way can the 'knowledge explosion' be mastered and made to serve the interests of the pupils : otherwise it exerts a tyranny, a continuing pressure towards the cramming of more material into syllabuses, and the cramming of more material into children's memories. Those who see the

situation as calling for the 'restoration' of certain standards are right to demand the effective learning of basic skills as well as precision of language and clarity of concepts, but they need to recognize that a new society calls in addition for the cultivation of other qualities.

Thus teachers will be called upon to collaborate in a variety of unaccustomed ways, not simply with classes of children or with small informal groups of pupils, or yet with colleagues in team teaching, but with policy-making committees in schools, with examiners, with staffs of teacher-training institutions and colleges of further education, with visiting consultants, with social workers, with factory managers, with parents and with other members of the public.

CONSEQUENT CHANGES IN COLLEGE WORK

Organisation of studies

If these forecasts are at all near the mark, they carry certain implications for colleges and departments of teacher education; which may for brevity be referred to as 'the colleges'.

The first is that by far the most important implication for the colleges is a radical reorientation in their methods of organising students' academic and professional studies, whether for student teachers in initial training or for serving teachers. Students cannot learn to collaborate effectively with other members of their own profession, or with members of other professions, or with members of the public, or with persons above and below them in a hierarchical system, except through being placed in situations which demand such collaboration in their academic and professional work as well as in their social life. If students are to learn how to seek out and assess information for themselves and develop their powers of independent judgment, they need to spend a large part of their time actually doing this: at present many students in all parts of secondary and higher education spend the greater part of their effort on assimilating information delivered to them by lecturers or contained in prescribed books, a major purpose of which is preparation for examinations. Similar comments apply to the other aims mentioned. This view does not in any way entail an outright rejection of traditional methods but — as in schools — a displacement of formal instruction from its central role and a certain rhythm or alternation between the formal instruction and the informal exploration.

I therefore see the following changes of emphasis in the college curriculum.

Structure and content of courses

First as regards the structure and content of the courses offered. It is convenient to look at the curriculum as an assemblage of six sets of components: those that make up the principles of education; those that make up the professional courses student-teachers need for teaching in primary or middle schools; those that make up professional courses for serving teachers and probationary teachers; those that make up the various specialized courses known at present in England as 'main' subjects; and — to adopt two of Schein's proposals — those that constitute a new foundation course on social structure and institutions, and a new course on value-assumptions and value-judgments.

The James Report (4), the Open University and the White Paper Education — a framework for expansion (5) have given prominence to the idea of unit-based or modular structures, long familiar in North America, and these should operate across the board. They introduce an element of flexibility which allows less inadequately than at present both for the vast diversity of individual talents and interests and for the considerable changes that take place in these over the period from 17 to 22 in a student's life. If the universities and the Council for National Academic Awards (CNAA) would build this pattern into their regulations it would also enable many students to make a reality of the principle of lifelong or recurrent education. Student teachers should not only have some opportunity of choice among professional and education courses but among the components of their main subjects. It should be possible to form cross-disciplinary theme-based courses of study such as 18th century civilization or 20th century culture; though the majority of students to begin with would no doubt choose continuations of the specialist subjects taken at the ages 16-18. It would be necessary to build in adequate safeguards: all courses would stipulate their entry requirements; a student would have to justify to his director of studies any very idiosyncratic selection of components; and some sessions would have to be earmarked for discussing the inter-connections between the components of the courses.

From the six sets of components it will be practicable to assemble three different types of course. These follow the pattern laid down by the British Government in the White Paper already referred

to. First, there is a two-year course for a Diploma in Higher Education for pre-service student teachers ; second, a one-year professional course for pre-service student teachers who have gained a degree or a Dip. H.E., which would serve also to convert the latter into a Bachelor of Education degree (B. Ed.) ; and third, a series of one-term and part-time courses suitable for serving teachers and acceptable as contributing to an in-service B. Ed. These last should include courses for probationary teachers and for teachers designated as professional tutors, as well as others which mainly consist of a very radical questioning of the nature of school work, re-thinking curricula from first principles.

The components themselves should include an increasing number that were problem-centred and required the collaboration of specialists from several disciplines, and were acceptable as contributing to several different courses : for example, world population (biology, geography, sociology, anthropology, politics), atmospheric pollution (chemistry, biology, economics, geography, sociology), or urban poverty (history, sociology, economics, politics, literature). All three examples would also involve an analysis of the value-implications of events and policies.

I shall not have anything further to say about courses on the principles of education or basic professional courses on language, number, physical education and so on, since my main theme is that the principal need cuts across the subject boundaries.

So much for the structure and content of the courses.

Methods of organising students' studies

Let me turn to the methods of handling the material. There are three aspects here. First, if students are to learn how to collaborate effectively with specialists of other kinds, to assess and handle complex situations through such collaboration, to form habits of searching out and sifting information, and to develop powers of independent thought and judgment, their work should be organised largely on a basis of independent study. There are now a number of documented accounts of schemes in operation in various parts of the western world, whether as experiments or as regular routine courses. Some are predominantly individual study-guides using print-tape-slide materials ; some are more elaborate multi-media materials, including systematic practical work ; some are predominantly book-based and designed for use by small groups on relatively controversial material. When I refer to small groups in this context, I have in mind the dividing of a class of 25 or 30 students into half a dozen small groups or syndicates of 4-6 students, working on assignements in relative independence. In such a context the tutors find they spend less time on lecturing and more on tutorial work, and that they use lectures in a less formal way, whether as ad hoc expositions called for by a particular situation or as a means of summarizing and consolidating reports handed in by individuals or syndicates.

There are a number of other patterns of organized study in which the central core of the work is not a series of lectures but the work carried out by students in relative independence, for example the Nancy system and the Kellar plan. In all these the element of passive assimilation by the students is greatly reduced, without the systematic conceptual structuring of the material being neglected.

What is, however, desperately needed is a bank of study-guides and other materials covering the whole of the existing and proposed curricula of the colleges. It does not need to be a centralized bank ; it can be dispersed among the colleges. We can all get books and blackboards ; but the use of independent study materials cannot 'take off' until the materials at college level become much more readily available. Anyone who has had any personal experience of the preparation of such materials will appreciate the point I am making : it requires an immense number of man-hours to produce materials for independent study by individuals and small groups. The National Council for Educational Technology (NCET) in the UK showed foresight and initiative in launching the Colleges of Education Learning Programmes Project (6) in the autumn of 1970, and although this is now — thanks to the energy and persistence of the NCET — being implemented on a small scale, a far larger exercise is urgently needed if the psychological moment — of maximum rate of change over the next few years — is to be seized and not lost.

The second point regarding the method of handling the courses is a matter of the use of the students' first-hand experience. Science teachers habitually use students' first-hand experience, though they tend to use it to illustrate concepts and principles rather than — as the School Council projects have advocated — to form their foundation. Teachers of the humanities too often allow themselves to be dominated by books and words. In the two curriculum areas that should be required of all students — the study of social organisation and the study

of values — two principles are indispensable. The first is that a considerable variety of course units should be available, handled on an independent study basis by individuals and syndicates, so that there is a range of genuine choice through which students can find their own style and level. The second is that these course-units should be rooted in vivid first-hand experience. In the sociological studies this may be achieved by attaching students to probation officers, mental hospitals, industrial plants, housing authorities, or other selected situations, together with a judicious use of film and video-tape. A number of distinguished liberal arts colleges in the USA have organised such experience over several decades, though for somewhat different purposes.

In the study of values-questions there is needed a great variety of materials, especially literature of all kinds, fictional films, sound or video recordings of drama, source material from various religions, certain basic texts on ethics. The purpose of this kind of work is not the detailed study of works of literature and so on for their own sake, but the understanding of the motives and relationships of the persons involved, and especially the study of the value-assumptions lying behind their actions and the validity of the choices they make. In this kind of study works of literature, drama and so on must be *used*, not treated as sacred cows. Two other constituents are also needed. Students should acquire an understanding of the nature of moral reasoning and judgment, and this is to a considerable extent a matter of linguistic and introspective analysis. But students should also have some experience and, if possible, practice in non-verbal art forms, since the values connected with what Maslow has termed 'peak' experiences represent an aspect of human life which is important for students to incorporate into their own value-systems. In these studies of social organisation and values it is of the utmost importance that students should be immersed in serious works which can fully engage them emotionally and imaginatively, and be confronted with major human issues, but should also have the opportunity to diverge from the views of their tutors. The syndicate type of organisation is accordingly particularly appropriate here, since it enables students to work out their own views in some independence of their tutors.

I turn to the third aspect of the method of handling the material, namely the methods of assessment. I sometimes marvel at the lack of critical analysis and deliberate experimentation we have applied to our system of examinations and assessment ; this no doubt points to all sorts of undisclosed motives at work in those who control our education. Customary essay-type examinations may be regarded as testing the following aspects of a student's knowledge and skills.

1. His recall of facts and concepts ;
2. his skills in (e.g.) logical exposition, computation and scientific inference ;
3. his skill in marshalling evidence and arguments on a complex question into a well-balanced whole ;
4. his power of independent judgment in the interpretation of data and the assessment of their significance ;
5. his capacity for applying learned principles in unfamiliar contexts or, in more general terms, his ability to see the implications of learned materials beyond the context in which this is first learned ;
6. his capacity for divergent thinking ;
7. his speed and fluency of thinking and writing.

Serious criticisms of the essay-type examination have been current for many years. Evidence shows that their reliability is often low ; that is, different examiners do not necessarily award the same grades to the same scripts, and the same examiner may be inconsistent in his marking standards. Analysis indicates that the validity of these examinations is low : they do not necessarily test the qualities and attainments to which the teachers attach most importance ; for example, functions (1) and (2) may in effect weight more heavily in the examiner's mind than is intended by teachers aiming primarily at the capacities represented by (3), (4) and (5). In any case, many students perceive such examinations as preponderantly tests of (1) and (7) and are often cynical about the subjective element in the examiner's judgment of (4) and (5). In addition the coverage of the syllabus under (1) is inevitably patchy : the sampling error is high.

If the kinds of intellectual and imaginative skills that I have mentioned are to be reasonably assessed, and the assessments are to command the confidence of the teachers, the students and the subsequent employers, then it is a matter of urgency that the examination system in higher education should be subjected to an adequate critical analysis and to systematic experimentation.

School-based experience

If students are to gain an adequate understanding of the classroom methods and approaches outlined

in section on "Evolution of school work" above, and of the implications as outlined in sections on "Evolution of society; broad features" and on "Preparation for the professions" above for their professional work in the school system, they need the following types of school experience.

First, they need to get experience of traditional formal methods being carried out with a high degree of expertise. Probably most colleges have access to some experienced teachers to observe, and the customary 'block' practices in schools (i.e. periods of several weeks of continuous teaching) have been intended to provide both observations of experienced teachers and practice of the skills under their guidance. The reality, however, has often fallen short of the intention, and a variety of techniques have been introduced to overcome the limitations. Film and video-tape recordings have been increasingly used for giving students an experience of teaching of a higher quality than is accessible in the college area. Students have been trained in the analysis of the personal interactions between teacher and class, in order to enable them to appreciate the implications and effects of different types of behaviour on the part of the teacher (Flanders and Amidon's interaction analysis). More recently some attempts have been made to train students also in analysis of the intellectual processes evoked in pupils by different types of instruction and questioning on the part of the teacher. Over the last two decades there has also been an increasing use of group practices, in which a college tutor takes a group of 8-12 students to work in a school class, demonstrating various techniques and recording the class work on tape for subsequent discussion, and enabling students to share in the planning and execution of the various types of work. In addition, steps have been taken in some places to appoint teacher-tutors in schools. The function of these members of school staffs is to ensure not only that the students take the fullest advantage of the facilities and expertise possessed by the individual school but especially to promote deeper understanding and appreciation between school staffs and college staffs through the holding of joint seminars.

Second, students need to get experience of 'modern' methods of independent study and resource-based learning based on individuals and small groups, in operation in schools. The difficulties of obtaining first-hand experience of expert work of this type are at present even greater than for traditional methods, and colleges are more dependent on film and video-recordings and especially on the 'group practice' approach. Interaction analysis and analysis of intellectual processes are again valuable, as also the teacher-tutor system.

Third, students need to have the opportunity of learning some of the basic skills required for both 'traditional' and 'modern' methods of school work. The group practice gives students opportunities to practise some elements of the more complex, informal techniques. But the length and nature of the different types of school experience required for learning the various skills remain a subject of controversy.

Fourth, students need to get experience of the way in which their pupils' attitudes and capacities in the classroom are influenced by their social and family background. Group practices provide a context in which students can visit children's homes under controlled conditions and gain some slight experience. But the opportunities provided by the schools for such experience remain very limited.

Fifth, students need to begin to appreciate the special contributions that are made to pupils' intellectual and personal development through the different types of learning experience. For some time to come such work will have to depend heavily on the indirect approaches already mentioned: group practices and video-recordings.

Finally, students need to begin to appreciate the implications of the various learning experiences at college level for their work in schools.

The structure and functioning of the academic community

If students are to gain an understanding of the relationships and skills outlined above, they need some experience of living and working in communities that work on those lines. Great strides have been made by colleges in the UK in the past decade in creating within themselves consultative and decision-making structures which involve all members of the community, including the students, in the evolution of policy. Considerable strides have been made in developing closer collaboration with schools, with teachers' organizations, with university departments, with social workers, and with the public. These developments need to be extended more widely, and they need to be paralleled by a new emphasis on the clarification of the aims and objectives of the college and its courses and on the evaluation of their effectiveness. One of the working papers of the National Council for Educational Technology (6) has proposed that a consultancy service should be established

to provide conferences and consultations *within* the colleges on these and other innovatory developments. Where reorientations of approach are required in academic institutions it seems to have little effect for individual members to attend courses of study *outside* the college, and there appears to be a strong case for planning in terms of in-college conferences organised jointly between internal staff and external consultants. The training of such consultants is important, since their role is not to tell the lecturers how to do their job but to help them to articulate their problems and hence work out their solutions for themselves. What I have in mind here is the kind of model that has been spelled out by Carl Rogers in the USA and used by the Marriage Guidance Council movement in Britain. It is significant that Prof. Prost has a similar model in mind for his professional tutors.

A PROGRAMME OF INVESTIGATION

A country's teacher education programme has considerable strategic importance in the development of its education system, and I consider therefore that a research programme is to be regarded from a governmental standpoint as a means both of monitoring changes and of providing evidence for steering development and facilitating innovation in the most favourable directions. If my forecasts set out above are at all close to the truth, it would seem logical to plot the programme of investigation on the following lines.

The monitoring of new developments

It would seem to be of the greatest importance in any country to establish a machinery for monitoring new developments. In England the Department of Education and Science has recently made a small amount of money available for the evaluation of experimental schemes in teacher-education but the initiative is left in other hands and no attempt is made to commission studies of promising innovations. Such innovations are usually carried out by dedicated individuals or teams rather than by researchers or administrators and it is essential that some procedure should be set up for their evaluation. The Committee for Research into Teacher Education (CRITE) was set up in 1969 by the Association of Teachers in Colleges and Departments of Education (ATCDE), the Universities Council for the Education of Teachers (UCET) and the National Foundation for Educational Research (NFER), but has been unable to persuade any funding body to support a Research Services Unit that would give guidance to innovators in colleges on the evaluation of their experiments. In the new situation created by the Government's decision to reorganize the structure of teacher education over the next decade it would seem madness not to provide both for the commissioning of studies of promising fresh schemes and for assistance to innovators in evaluating their experiments. Since the Department of Education and Science (DES) has always insisted on complete neutrality in regard to the content of education at every stage, there is clearly a formidable case for at the very least the funding of CRITE, and preferably for the establishment of a body responsible for research and development in the field of teacher education, analogous to the Schools Council for the schools.

A further point must be made on the monitoring of innovations. Because experiments are usually carried out by small bands of enthusiasts on a small scale they rarely provide the conditions for the exercise of the strictly 'scientific' type of investigation. The usual model for such evaluations is what Parlett and Hamilton (7) refer to as the 'agricultural botany' type : the effectiveness of an innovation is assessed "by examining whether or not it has reached required standards on pre-specified criteria. Students ... are given pre-tests ... and then submitted to different experiences ... Subsequently after a period of time, their attainment ... is measured to indicate the relative efficiency of the methods ... used. Studies of this kind are designed to yield data of one particular type, i.e. 'objective' numerical data that permit statistical analyses. Isolated variables like IQ, social class, test scores, personality profiles and attitude ratings are codified and processed to indicate the efficiency of new curricula, media or methods." But, as Parlett and Hamilton note, there are serious defects in this approach.

In the first place, because of the small scale it is extremely difficult to set up genuinely matched 'experimental' and 'control' groups : this would presuppose a scale of organisation and administrative manipulation to which most experimenters would probably not aspire and few would have access. The very process of attempting to create such controlled conditions could well render the experiment so artificially neat and contrived as to remove it from reality.

Secondly, experimental schemes rarely remain static during their period of operation. Unforeseen circumstances arise, whether of organisation or of personal responses and relationships, which demand of the teacher — if he is to respect his

professional responsibilities to his pupils — that he should adapt the scheme. Education is fundamentally concerned with relationships and responses between teachers, pupils and the material of study, and experimental schemes ought to take second place to the needs of the people concerned.

Third, a strict attention to quantified data can lead to the exclusion of other evidence — "casual" or "subjective" or "anecdotal" — which may in fact be more significant for the understanding of the way the experiment has worked out in its total institutional context. Thus inadequate attention may be given to the specific features of the personal and political relationships in the institution concerned, for a full understanding to be gained.

An alternative approach to evaluation has been outlined by these two authors. They use Martin Trow's term 'illuminative' to distinguish it and comment that "its primary concern is with description and interpretation rather than measurement and prediction. It stands unambiguously within the alternative anthropological paradigm. The aims of illuminative evaluation are to study the innovatory programme : how it operates ; how it is influenced by the various school situations in which it is applied ; what those directly concerned regard as its advantages and disadvantages ; and how students' intellectuel tasks and academic experiences are most affected." They quote from Martin Trow : "Research on innovation can be enlightening to the innovator and to the whole academic community by clarifying the processes of education and by helping the innovator and other interested parties to identify those procedures and those elements in the educational effort, which seem to have had desirable results."

Here the researcher's chief task is "to unravel (the complex scene he encounters) : isolate its significant features ; delineate cycles of cause and effect ; and comprehend relationships between beliefs and practices and between organisational patterns and the responses of individuals." "Characteristically . . . there are three stages : investigators observe, inquire further, and then seek to explain." In the first stage the investigator visits the institution(s) concerned, meets the people involved, observes what is going on, attends meetings and records discussions, builds up a continuous record of events, and thus forms a broad view of the exercise as a whole in the institution(s). In the second stage he selects a number of features for "more sustained and intensive" inquiry. He records interviews with staff and student participants, both structured and open-ended, the staff seen including not only the teachers concerned but the administrators and others who are indirectly involved. He may arrange for diaries to be kept by a number of individuals and obtain autobiographical and eye-witness accounts of events. Where it is useful he will obtain information from questionnaires, attitude tests and so on. In the third stage the investigator seeks the general explanatory principles underlying the whole experimental scheme, assessing the aims, implicit and explicit, and tracing the sequences of cause and effect. The authors emphasize the need to take precautions against partiality in the investigators by cross-checking the findings and by making explicit in a clear and detailed way the criteria by which particular sections of evidence are judged important or unimportant. The investigators must be personally acceptable in the institution, scrupulous in respecting the views and the confidentiality of the people, whether staff or students, engaged in the experimental scheme, and entirely open and candid in elucidating their own role.

In effect, it may be said that this type of action-research involves a joint assessment by the external investigator(s) and the internal practitioner(s). Such research should be a fundamental component of a development programme ; much of it should be carried out by college teachers in the colleges.

The remainder of this programme of investigation lists the areas of development in which it seems most urgent to set up appropriate investigations.

The use of independent study materials for individuals and syndicates

It is generally accepted now that the construction of independent study materials requires the precise formulation of the objectives of the study ; the Open University teams spend a great deal of time on this aspect of their work. Unfortunately objectives are too often defined either in hopelessly vague general terms or in quite precise but limited and exclusively cognitive behavioural terms. It is not merely legitimate but vitally important to pursue more complex and ambitious aims ; for example, in a study of the Polish film "Ashes and Diamonds", to enable the students to appreciate the questions of motives and values that are raised. This may involve the making of psychological discriminations in the complex social situations of the young man and his colleagues and the girl friend, the subtle balancing of pros and cons in arriving at moral judgments in their revolutionary situation, the probing of relationships communicated largely

without words. Such aims, however, are neither purely cognitive nor purely affective; and they cannot be broken down into clear-cut behavioural objectives. Given this reservation on the specification of objectives, it is highly desirable to reinforce two particular developments in relation to independent study materials. The first is the establishment of banks of materials for resource-based learning at student level, with all that involves in the field-testing and evaluation of the materials; the second is the assessment of the influence of this approach on students' work and attitudes.

The establishment of banks of materials for independent resource-based study requires in itself some machinery for reinforcing the trends already manifesting themselves in colleges up and down Europe, especially through providing information services on the materials already produced within the colleges, through providing for their field-testing and upgrading, and through enabling active individuals to meet, as well as through a concerted attack on the copyright problem and a systematic utilization of materials produced by the television companies. What would be extremely useful in this respect would be a Council of Europe standing committee on the development of educational technology in teacher education, as was proposed a year ago by a previous Council of Europe working party.

The assessment of this type of academic organisation involves a study of its influence on students' attitudes to academic studies, on their capacity for forming independent, well-founded judgments, on their perceptions regarding the nature of knowledge, and on their relations with their teachers and with their peers. This requires the anthropological approach that I have already outlined, rather than the narrowly conceived ostensibly scientific approach. This is not to deny the use of the standard research techniques of the social sciences but to place them in the social and political context of the institutions in which the work takes place. A preliminary study of this kind is planned in six English colleges for 1973-74. It has to be borne in mind that students differ widely from one another, and vary widely from one context to another, and that one cannot expect to find watertight generalizations about the 'best' learning techniques applying indiscriminately to all situations. It would be useful if information on students' education, background and abilities could be stored on computers to underpin such studies, and preliminary moves have been made in this direction in some colleges in England.

The development of multi-disciplinary study-units

A particular aspect of the above section is the creation of materials that will give students some training in the handling of complex problems requiring a variety of academic disciplines for their study. Such topics are seldom taught adequately. Usually a single teacher attempts to synthesize the various approaches. Sometimes teams of teachers collaborate. Rarely is the work designed in terms of assignments to be carried out by syndicates of students drawn from different disciplines and obliged by the tasks and the resources to synthesize their material. Small-scale experiments on the production and use of such assisgnments could be carried out within a modular course structure, and on the variation in usefulness between institutions, between students, and between subjects of study.

The study of social structure and institutional change

Any subject that is obligatory for large numbers of students is liable to decline into a condition of perfunctory teaching and resentful learning. If this subject is introduced as a requirement it will need monitoring. Something could be learned from the existing practice of attachment to industrial, social and medical institutions in England and the USA; much experiment will be needed both in the use of such placements and in the use of film and video-tape. What will be especially important is the precise statement of the purposes of the first-hand experience and of the conceptual framework that accompanies it.

It will be necessary to assess the influence of the work on students' perceptions of industrial/urban society and their discrimination in relation to its problems. It would be useful to study also the varying relationships between preparatory conceptual briefing, placement experience, and subsequent theoretical interpretation.

The study of values and of moral judgment

Similar observations apply here to those made above. The task here, however, is more complex, since we are concerned first with the identification of motives and relationships in complex situations and second with the moral implications of people's actions: the bases of their judgments and the validity of their decisions. It is necessary to look not only at the reasons for decisions but at the nature of moral reasoning. One could not expect to measure the influence of such courses by their effect on the students' moral judgment, since the

purpose would not be one of proselytization or propaganda, but rather by their understanding of the processes of moral judgment, by their awareness of the pitfalls of self-deception, by their capacity for articulating their own value-assumptions, and by their insight into some 'heroic' figures of literature, drama and film. The sensitiveness of this area of debate in a plural society where there is a big 'generation gap' will call for an equivalent sensitiveness on the part of tutors and a technique of study which enables the students to feel they can think for themselves without a tutor breathing down their neck. In my experience the basing of such work on syndicates gives a suitable opportunity for this 'distancing' of the work from tutorial domination.

It is accordingly even more important here than elsewhere to be precise about aims and for some development money to become available for assessing the influence of various materials and techniques on the students' discrimination in different areas of moral action and in different institutional contexts, for example, in relation to family situations, political problems and professional matters. One may need to use multiple criteria and to think of students developing different 'profiles of values as they live in institutions having different value-profiles or climates of opinion.

Examination and assessment

What is needed here is some systematic analysis of the knowledge and skills perceived by teachers, examiners and students as tested in customary essay-type examinations. Similar exercises need to be applied to other types of assessment procedure in teacher education. Third, systematic experimentation should be carried out on the use of various techniques for assessing the achievements of students in the directions outlined above. For this purpose it may be necessary to establish a bank of material for use in new types of examination questions, some of it of the multiple-choice type, some of it material — drawn perhaps from research reports — on which students can be asked to exercise their judgment without regurgitating memorized information.

School-based experience

A student's eventual performance as a practitioner in a school is one of the touchstones of his professional success; yet assessments of school practice while at college have shown little correlation with those made a few years later. The first year out from college appears to exert a powerful influence and in the new system to be introduced in England in the next few years it will be of special importance to monitor the effect of the new training on students' subsequent performance. In particular the changes of attitudes, perceptions and expectations that take place between a student's entry into professional training and his emergence as a fully qualified teacher need to be traced, together with the factors that influence them in college and school. The work done by Edith Cope, John Taylor and Ian Lewis at Bristol University is undoubtedly of great significance. The problem of criteria, however, remains, and hence also the problem of preparing test instruments. It may be necessary here also to think of the profiles of individual students in relation to those of particular institutions.

An area which has received surprisingly little attention is the analysis of the processes of thought evoked in pupils by different teachers and different classroom techniques. It would be useful to know, when the groundwork of study has been laid down, whether the training of students in such methods is useful in developing their discrimination, as has been found by Flanders and Amidon with interaction analysis. In my opinion the analysis of the thought processes that take place in classrooms is a major need.

A further area which has not as yet received a great deal of attention is in the use of self-observation by means of video-tape. From my experience of the use of sound-tape for this purpose I would consider the value to be small for many students until they can be taught to discriminate the influence of various types of behaviour by the teacher on the responses and relationships of the pupils.

I referred earlier to the appointment of teacher-tutors in schools. Some studies have been made of this system but a good deal more needs to be done on the influence of this system on the perceptions of tutors, of teacher-tutors and of students in relation to such matters as teaching techniques and discipline. Other experiments need to be made on the joint working of groups of teachers, lecturers and students and the influence of such involvement on the members' perceptions.

The academic community

The principles of investigation set out above involve also some systematic study of colleges and institutions. Little information is available on the way in which authority structures are working in English institutions of teacher education, and even less on the relation between authority structure and capacity for innovation. Capacity for innova-

tion is itself an ambiguous phrase, since — as Prof. Prost has emphasized — innovations vary so greatly in their significance. Probably the most useful approaches here would be a series of case studies of innovations in different colleges, in which the social 'profile' and 'political' characteristics would be a major aspect of the study. It would be particularly useful to carry out such studies in relation to the development of new courses and in relation to such exercises as the definition of college aims and objectives and the introduction of machinery for evaluating courses. Finally it would be valuable to carry out case studies on the use and influence of in-service work-shops for particular departments or groups of staff in colleges.

Implementation

The programme outlined above calls for as decisive a reorientation of development policy in the content and methods of teacher education in Britain as was brought about by the creation of the Schools Council for school education. In the British situation a development policy of this kind could not be carried out by a government department, and there seems to be an unanswerable case for the establishment of a new Research and Development Council. It is debatable whether this should be restricted to the field of teacher education or designed to serve the whole extent of tertiary or higher education. Its composition would need to have the various educational interests suitably represented. Such a Council, supported from public funds, but not under the control of a government department, could create an adequate programme of carefully thought out and tested development.

It will, however, be recalled that my programme of investigation was conditional on the fulfilment of my predictions. No reader will have difficulty in supposing that they may be wrong, whether in substance or in time-scale. What is not dependent on the accuracy of my predictions is the scale and complexity of the needed research programme. The evolution may take a different form, and policy may develop along different lines, but there will be analogous problems to face, and on a similar scale, arising from the nature of contemporary society. A research programme in teacher education should be regarded primarily "as a means of monitoring changes and of providing evidence for steering development and facilitating innovation in the most favourable directions." When society is changing so rapidly it is imperative that there should be some machinery for facilitating the development of thinking at a national level on the content and methods of teacher education. There must be some organisation which can do for teacher education what the Schools Council does for schools. "The Schools Council does not exist to impose a new curriculum on the schools, but to provide a supporting service for the teacher in answer to the demands for an increased rate of progress; to identify and make known successful practice, to facilitate experiment, to test and evaluate and to provide the necessary expertise, to devise and disseminate appropriate teaching materials" (7). In my opinion it would be quite practicable for the Department of Education and Science to make three radical moves quite rapidly. The first would be to fund the project of the National Council for Educational Technology on the building up of a bank of independent-study materials and a consultancy service for the colleges of education with a built-in requirement for systematic case studies. The second would be to fund a Research Services Unit for the Committee for Research into Teacher Education (CRITE), in order to encourage the inauguration and evaluation of fresh courses. The third would be to invite CRITE, suitably augmented, to design a blueprint for a Teacher Education Development Council. These are not extravagantly ambitious schemes; they would provide a machinery for developing teacher education in those directions which continuing study and regular reviews of progress indicated to be profitable. I have presented them in terms of British institutions, but I would consider that similar types of machinery might be appropriate also in other countries.

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Retrospects and prospects in teacher training education

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Background

Teacher training research embraces many problem areas : teaching, learning, child development, social relationships and many others. It may concern sequences in teacher training from selection for teacher training to final examination. It may concern analyses of institutions, resources and processes. It may be based on the content and structure of teacher training. It may cover teacher personality, the teacher's role, and so on.

I find it impossible in this context to deal with all these problem areas within teacher training research. In consequence, I have chosen a number of likely future problems in the field of teacher training as my subject. The prospects of teacher training research necessitate certain assumptions concerning future teacher training, and, in turn, these assumptions must be based on certain assumptions regarding school and education in the future. We may thus presume futurologically that the fundamental objectives of the school will not change radically. A threefold objective for the school is consistently found in laws and regulations relating to the school system in Europe. These are 1. the self-realisation of the individual pupil, 2. socialisation, public utility and productivity and 3. the creation of equality regarding educational opportunities.

It may be assumed that these three objectives will remain, but their realisation may result in different operations in different school systems. Economic and social conditions may also vary.

In addition to these fundamental assumptions, prediction of future development is also based on the interpretation of present development trends. By extrapolating development up to the present, the probability of these predictions being correct may be increased. Such predictions may for instance relate to the introduction of general preschool education, the broadening of secondary education so as to embrace all or most young people, co-ordination of adult education with work, etc. Certain political decisions may already have been taken concerning such changes.

The adoption by school and education of certain fundamental values constitutes the third basis for the prediction of future developments. This means that educators not only adapt to external developments but also endeavour to influence this development.

One of these sets of values concerns external human environment and people's way of life in its broadest sense. It is now considered that industrial development consumes natural resources at a pace which threatens man himself. If left to its inherent conditions, this industrial development and the market forces associated with it will make it more difficult, or even impossible, to achieve the objectives of the school as outlined above. The responsibility of the school for each person's development, both as an individual and as a member of the community, must be emphasised and respected. The content of instruction and its working methods will be affected by this, even if the overriding objectives are not changed.

Another set of values concerns the responsibility of the individual for an active cultural life and his contribution to this. The present dissemination of an established culture may result in the individual becoming a passive receiver of information, and may cause cultural alienation in the form of drop-out cultures, mysticism, drug taking, etc. The need for the school to deal with social problems of this nature more directly than now may lead to new tasks.

The tendency of school to become institutionalised and to live a life of its own divorced from the rest of the community has long been criticised. The discussion on deschooling in recent years concerns the measures required to co-ordinate educational and social action, to take into fuller account the interests and needs of different groups in school and other educational establishments.

The increasing demands for adult education and recurrent education are based on similar values and views. Co-ordination of education and work is also the basis for ideas concerning lifelong education, education permanente, etc. which have been put forward in different contexts. The characteristics of such education systems are radically different from those of the present school systems.

They change the education of children and young people just as much as they change adult education and the relations between these educational levels and work. The school becomes a more open and flexible system and its institutional character diminishes.

Issues such as these pose difficult problems not only for politicians but also for teachers and researchers. It is becoming increasingly evident that nobody can avoid taking sides in this connection. Future teacher training research will be affected, and the researcher himself influences the future of the school by his choice of problems and working methods.

On the basis of the above, a prediction of the school in which a teacher will work in 10-20 years from now may be set out as below :

approx. 6-15 years of age

Compulsory elementary plus lower secondary education for all ; individualised programmes in predominantly undifferentiated local schools.

approx. 15-18 years of age

Non-compulsory upper secondary education available for two-thirds of all (or more) ; predominantly differentiated schools, regionally planned.

from 18 +

Higher education for approximately one-third of all ; specialised programmes ; recruitment on national and international basis.

Such a school structure provides in broad outline the external frame of reference for the future teacher and therefore also for future teacher training research. Naturally, not all the problems which can be forseen are research problems. Most of them can be solved by administrative measures.

The teaching profession. One job or two ?

The teacher training we have had so far is clearly inadequate for such a new school system. A quick retrospect will tell us that it is based on a dualistic system : an elementary school for the "people" and an advanced school for the select few. Selection in this school structure is made at a young age, after which the pupils belong to two parallel school systems more or less independent of each other.

Teacher training is split into even more distinct categories. Class teachers and subject teachers have had (and to some extent still have two so different sorts of training that we may wonder whether they are destined for the same profession of for two different jobs. They have started at different initial levels, one is general and the other narrowly specialised. The practical and educational studies (in so far as these do form part of subject teacher training) have been co-ordinated with the studies of the appropriate subjects on the basis of different integration models. The two categories have been trained in different institutions and in different intellectual climates.

As a rule, teacher training research has been based on this state of affairs. The same cannot hold in the future. Basically, the duties of a teacher are the same in both categories. Teacher training research has so far mostly dealt with the training of class teachers, since this training has been the most accessible for research. The training of subject teachers has sometimes not even been regarded as teacher training.

Detailed analyses should be made of what actually constitutes the teaching profession. The class teacher training model has for a long time been considered superior to the subject teacher training model. This points to the conclusion that the subject teachers must be trained according to the integrated model applicable to class teachers. However, this may in turn result in an undesirable institutionalisation of teacher training as a whole and to severance of contacts with other professional groups.

Future teacher training research will probably concentrate an analysing : 1 that which is special to the teaching profession in relation to other professions, 2. criteria relating to categorisation of teachers in sub-groups, 3. criteria regarding teacher quality in the old school and in a prospective school.

Teacher characteristics

Up to the end of the sixties, a great number of studies were made regarding teacher characteristics and teacher personality. Endeavours were made to find the criteria which define the "good" teacher. Different methods and materials were employed and different procedures were used. A common feature of all was that they were based on the assumption that there are teacher characteristics which are generally "good" and teachers who are generally "good", more or less independently of external conditions. It cannot be said that the researchers engaged in such studies were successful. Two American researchers (Morsh and Wilder) summarised as early as 1954 the teacher aptitude research performed in the US during the period

1900-1952 concerning "prediction of teacher effectiveness". Domas and Tiedeman (1950) listed 1,006 investigations in a bibliography regarding "teacher competence". Similar bibliographies have been written by Castetter *et al.* (1954), Tomlinson (1955) and Watters (1954). Barr, who has devoted lifelong scientific work to this problem, made similar summaries in the *Review of Educational Research* for each three-year period from 1940 to 1959.

Two Americans, Bruce Biddle and William Ellena, published in 1964 an excellent summary entitled

Contemporary research on teacher effectiveness

Owing to the breath and complexity of the problem, it is touche' upon in many adjacent areas of research, such as the organisation, administration and evaluation of teacher training. The variety of terms used in connection with these investigations and bibliographies include effectiveness, aptitude, competence, evaluation and prediction.

As may be seen, the quantity of investigations is overwhelming. In fact, the number of investigations is so large that it is difficult to review, the field, and, strictly speaking, a bibliography of the bibliographies is required. The *Encyclopaedia of Educational Research*, published in 1941, 1950, 1960 and 1969, is of this nature. Mitzel (1960) summarised American aptitude research stated : "More than a half-century of research effort has not yielded meaningful, measurable criteria around which the majority of the nation's educators can rally."

Teacher behaviour

Thus the period up to the beginning of the sixties was dominated by research into teacher characteristics. Much valuable experience was obtained, including data relating to the definition of teacher effectiveness criteria. It has nevertheless been found difficult to benefit from these definitions. They have been found of slight value as criteria for selection for teacher training. The prediction of teacher effectiveness was also consistently low or non existant. The end of this type of research is marked by the comprehensive teacher aptitude study of D. Ryans, published in 1960 and in different journals later. The study by Ryans constituted at the same time the introduction to a new phase in teacher research. A move was made from teacher characteristics to teacher behaviour. Although Ryan's first book is entitled *Characteristics of Teachers*, it is based on observations and categorisations of teacher behaviour. Altogether, the investigation included about 6,000 teachers and 1,700 schools. After comprehensive preliminary studies, Ryans constructed a scale called "Classroom Observation Record" which measured 18 categories of teacher behaviour. When Ryans had trained a number of assessors in the use of this scale, they carried out observations independently. Summaries were prepared for each teacher and for each behavioural element. Correlations were computed, and the material was then subjected to factor analysis. Three factors were isolated for the description of both class teachers and specialist teachers. In addition to the observation schedule, a questionnaire completed by the teachers themselves was employed. On the basis of all this information, Ryans constructed an instrument called "Teacher Characteristic Schedule" for the measurement of what he considered was teacher aptitude or teacher capability. This was an omnibus questionnaire in which the teacher, by answering 300 items of the multi-choice type, gave information about himself, his preferences, judgements, involvement, etc. Three such instruments were employed, one for class teachers, one for teachers of mathematics and natural science subjects and one for teachers of English and social studies.

The essential question for Ryans was whether it was possible to observe and describe teacher behaviour in a manageable and reliable manner, irrespective of whether such behaviour was good or bad, effective or ineffective. Ryans claimed that this could be done, and he and his followers in both America and in other countries have constructed a large number of instruments for the measurement and prediction of teacher behaviour.

The results obtained by Ryans were elucidatory, even if they were regarded by many as disappointing. Things became quiet on the teacher aptitude research front for a couple of years. Such new findings as there were occurred primarily by the employment of better methods of observation using video-tape and film and not by the discovery of new teacher behaviour or new evaluation criteria. It was not only possible to observe and record teacher behaviour more reliably, but the behaviour could also be documented and the results employed for training purposes. The teacher trainees could see themselves and discuss their behaviour with instructors and fellow students. Micro-teaching is a method which is now used in many places. Special programmes have been prepared for self-confrontations. Closed circuit television is employed in a systematic manner in order to illustrate in a practical way educational theory, problems of learning, teacher-student interaction, etc.

Many interesting prospects are opened up in this way for teacher training research. The development of cassette-TV also indicates ways in which both educational theory and educational practice can be transmitted more effectively in teacher training. Abstract concepts can be exemplified; their implications can be made visible and audible.

Teacher role

It may thus be said that modern teacher research and teacher training research have passed through two main phases, one long phase with teacher characteristics as the principal subject, and a second which concentrated on teacher behaviour. Looking back over this research we see that many difficulties remain. We are now in a third phase in which the principal subject is teacher role. What are then the differences between teacher characteristics and behaviour and teacher role?

Naturally, teacher role is also dependent on the characteristics and behaviour of the teacher. The new element is primarily a systematic consideration of the changed external conditions which apply to the teaching profession and to teacher training. Owing to the reforms in school and in training, the teacher is confronted by conditions which are new or changed. The teacher must provide instruction in new curricular subjects. The changes mean that his own instruction and the studies of the pupils must be arranged in a new way. He finds himself facing pupils whom he did not expect to teach. He cannot perform his role without close collaboration with his colleagues, etc.

What is behind all these requirements? They are a consequence of the decisions and measures which the makers of educational policy now consider necessary in order that the above objectives concerning self-realisation, public utility and equality may be achieved in the school and by virtue of its teaching. Policy makers may be teachers and researchers as well as politicians. The work of the teacher and his role are perhaps the most important means of carrying the school and education forward towards these objectives. It has become important that all youngsters, and not just a particular selection of them, should be educated. It has also become important to employ certain working methods, certain student groupings, etc. All this does not mean that the teacher is allocated from outside a definite teacher role, but it means that the teacher must be able to understand and correctly interpret his duties, to get to know the needs and abilities of his pupils and his colleagues.

Teacher professionalism

The definition of the role of the teacher on the basis of the objectives and the interpretations of these objectives opens up new possibilities for teacher research and teacher training research. What previously impeded this research was mainly the absence of operative criteria of "good" teacher behaviour or a "good" teacher role. The hopes that criteria concerning teacher effectiveness will be found quickly and easily must not be set too high, however. Nevertheless, the chances of this are increased by the urgency to relate teacher behaviour to structures and resources in the school.

It is often said that the teacher must become professional in order to fulfil his role and duties. What is the position with regard to this?

Teacher professionalism in the older sense, where the teacher was sole arbiter of education and educational methods, is no longer applicable. He is still important as the provider of information and as a substitute for a text-book, but he is far from being as indispensable as before. In other respects, traditional teacher professionalism is a direct impediment. The professionalism which implies that the teacher chooses the objectives and methods on the basis of the requirements of the subject, instead of those of the individual pupil, is no longer adequate. The professionalism which is manifested by the teacher passing certain pupils and failing others is also antiquated. And the professionalism which implies that the teacher selects pupils for definite subjects and courses is no longer practicable. The traditional duty of the teacher to perform selection for secondary school studies is also becoming less important.

It is remarkable how often it is just these aspects of his professional status that the teacher wishes to preserve and to strengthen. For the teacher who sees his task and his professionalism in this way the new teacher role implies de-professionalisation. One of the problems which future teacher training research may be expected to deal with is that of de-professionalisation in this sense.

How a badly functioning teacher professionalism can be replaced by an adequate teacher role may constitute an intricate research problem. The structural factors of education will form new variables. Economic matters will assume increased importance, and, above all, the relations between people with different roles inside and between teachers' teams and student groups, and between school and community will open up new fields of research.

Empirical research has already been carried out on the changing teacher role. Karl Gustav Stukát presented in 1971 an analysis of investigations in recent years, with special reference to expected changes in the teacher's role. He associated these expected changes with two trends in today's education, namely individualised instruction and educational technology.

According to Stukát's analysis of expected changes, the teacher working with systems based on such principles should be more involved in

1. individual contact with the students
2. diagnostic and evaluative activities
3. prescribing learning activities and materials
4. planning and organisation
5. preparation of instruction
6. co-operation with other staff
7. counselling and guidance
8. supervision of students working independently
9. small group tutoring
10. stimulating, motivating students, providing positive feedback
11. higher-order cognitive, heuristic teaching.

The teacher will be less involved in

12. contacts with the whole class
13. presenting factual information, drill-practice activities
14. routine managerial tasks
15. providing negative feedback
16. talking (total amount)
17. talking (in relation to student talking).

In the 14 research reports which Stukát referred to, he found clear empirical support for nos 1, 2, 3, 8, 12, 15 and 17. He found probable empirical support for 4, 5, 6, 10 and 13. As regards the others, his expectations were not supported, or there was no empirical evidence available.

Prospects as regards teacher professionalism

If the old teacher professionalism is no longer satisfactory, what is to be put in its place?

In order to answer this question, let us first examine how the prospective school outlined briefly above differs from the old school. The old school is made up of a number of units for planning and administration. These are blocks or squares in the education system. Most of these "squares" are taken for granted in their present form in the school of today. If we wish to develop the school and the teacher roles, however, it is necessary to call even the obvious in question. We shall now take a close look at some of the planning and working units which are regarded as self-evident. These "square" units are the school, the class, the lesson, the subject, the teacher and the text-book. They very much determine the teacher role. And it is becoming increasingly evident that these squares must be changed, if the objectives set for the school are to be achieved.

The school, in the sense of a definite number of premises and teachers, is proceeding towards dissolution. The boundary between the school and society is becoming less distinct; school and leisure time is becoming a continuity instead of being a dichotomy; the school-home unit is becoming a collaborative unit, and so on. One school must collaborate with another, perhaps by the teachers giving instruction in several schools, or the students attending courses in different schools. Higher schools take over where lower schools finish and adjust to them; the one supplements the other.

All this implies that the school will be replaced by a system of interdependent school units. This will change teacher roles in many ways. The same is true for the next square, the class. To a very great extent, it is just this form of pupil grouping which constitutes the teacher role. The broadened social objectives of the school now demand that the individual pupil should meet and form part of different pupil groups, that he should get to know the needs and abilities of different people, that he should be made to work as member of different collectives. This results in the class, as a fixed grouping, having to be replaced by groups of different kinds. This will give the teachers a role (or roles) different from the previous ones.

The same applies to the subject. Education which is centred on subjects is often education which is centred on the teacher. Interdisciplinary (and perhaps even transdisciplinary) studies make instruction more problem-centred and thereby pupil-centred.

The same is true for the lesson, the time-defined "square" which may be replaced by flexible timing according to the nature and scope of the studies.

This, in turn, has the result that the teacher as the solitary and isolated professionalist is replaced by a team. This includes not only the teacher but also assistants and technicians. A team provides a better balance for different parts of the curiculum; it gives the individual teacher a chance to specialise; it gives the teacher a chance of dropping routine tasks, etc. It also helps the teacher to see the pupil as an entity, a whole individual, and not only a person studying a subject.

The teaching team may radically alter the teacher's role and behaviour. If we add that the book, also a "square" in our traditional planning, is replaced by a system of teaching aids and teaching guides, this role will be changed further still.

Previous investigations of teacher characteristics and teacher behaviour were confined to what I will call "square education", which implies that instruction is given in ONE SCHOOL in ONE CLASS by ONE TEACHER in ONE SUBJECT with ONE BOOK during ONE LESSON.

These squares must be prized open with "educational crowbars". Educational development thus means a systems approach where the squares are replaces as follows :

school	⟶	system of school units
class	⟶	flexible grouping of pupils
lesson	⟶	system of shorter time modules
subject	⟶	study units
teacher	⟶	teacher team
text-book	⟶	educational materials system.

The objectives of the school may result in operations which change the structure of the school and education. The "squares" are replaced by a flexible system. This de-squaring results in a new teacher role. A number of social and sociological questions concerning the role and role expectations of the teacher are added to the previous problems of educational research concerning characteristics and behaviour. It is in this respect that research can help us define, observe and measure the variables in a new teacher professionalism. This is new since the concept of teacher professionalism has been broadened to refer also to social and economic conditions and not only educational ones. It is also new because the teacher is no longer isolated, no longer limited professionally. He must define his role on the basis of the needs not only of the school and the subject but of society and the pupil.

The changing role of teachers

Development of education in great breadth is hardly feasible unless its structural features are changed on the above lines. The safest way would probably be to change the forms of financial grants. The present system of the school class or the teacher as a unit for state support keeps back a flexible use of the resources and thereby an active curriculum development. State grants per pupil is a form more favourable to development. This grant per pupil would probably function with a system of different coefficients representing the degree of urbanisation and the degree of diversification of study combinations.

School development, including the change in teacher roles, always has to take into account the use of the above structural features. Unless these are amended, it will scarcely be possible to speak of true development.

What has been the reaction of teachers to the prospect of educational structures being disrupted on the above lines ? We shall reproduce the results of certain studies carried out in innovatory Swedish schools. One of these concerns changes in the teacher's method of working. The difference in educational forms between the innovation model with "disrupted" structural features and traditional instruction will be seen from the figures below (report from the innovatory school at Skellefteå, Sweden, for the academic year 1969/70).

	Traditional model	*Innovation model*
Teaching in class/large group	45 %	14 %
Individual tuition, stimulus, etc.	46 %	66 %
Directing and listening to oral tests and accounts, etc.	5 %	9 %
Directing diagnostic tests, written and oral accounts	4 %	10 %
Evaluation of work together with the pupils	0 %	1 %

It seems evident that the changes in the structural features have caused major changes in the teaching provided by the teachers and the work of the pupils.

In the same experiment, the teachers estimated the proportion of their work, excluding the giving of lessons, carried out at school and at home. The results were as follows :

	Traditional model	*Innovation model*
Follow-up work		
home	42 %	18 %
at school	17 %	46 %
Preparatory work		
home	29 %	13 %
at school	12 %	23 %

Preparatory and follow-up work in the new school requires collaboration with other teachers and with

pupils, and it necessitates access to the school's teaching aids and equipment. It is thus impossible for the same amount of work to be done at home. This is therefore an evident change in the teacher role.

Innovatory work in the school meets obstacles, for instance with regard to the attitudes of the individual teachers to organisational changes in the school. To a large extent, the obstacles are due to the institutional forms taken by the so-called teaching profession but also by teacher training.

Facts and conditions of this nature within the teaching profession and teacher training are of fundamental importance to the way the teacher sees his own role. His experience may relate to

1. the status and prestige of the teacher role
2. the possibilities for advancement provided by the teacher role
3. a sense of freedom in the exercise of his profession
4. a sense of security in the exercise of his profession
5. identification with the teacher role.

A change in teacher role will be more difficult if the teacher experiences this as a lowering of his status, i.e. a decrease of his professionalism. The same is true with regard to the possibilities for advancement, the sense of freedom and security and also identification with the teacher role. If the teacher sees the change in role as being in conflict with his interests in these respects, actual change may be insignificant or completely fail to materialise. It will instead become an effective obstacle to the educational innovation of which the change in role was a part. Innovations of this type, especially with a massive change of structural features, therefore need long and careful preparation.

Prospective teacher training research

What conclusions may be drawn from these and similar investigations? What can we assume and predict about prospective teacher training research?

In the research concerning teacher effectiveness or teacher training which has taken place over the past few years, it is possible to discern two lines of development. The first of these concerns teacher effectiveness in the restricted sense of the term, teacher behaviour at the microlevel. Research has contributed many results in this respect. As early as the end of the thirties, H. H. Anderson in Chicago carried out studies into the relations between dominant and social-integrative behaviour in teachers. He found reliable methods of describing teacher behaviour. These methods were later developed further, by Withall and N. Flanders among others. Their methods of describing teacher behaviour have been of great importance. And this research, which ultimately relates to the subtleties of the teaching profession, will be developed further. But it needs a complement, and this brings us to the second line of development in the research into teacher effectiveness. This relates to teacher behaviour at the macrolevel, to the teacher as a community functionary in a broader sense. It is here that the new and broadened teacher role makes itself felt. The teacher role at the macrolevel can never replace that at the microlevel. The macrorole is not an alternative to the micro-role but an essential supplement to it. It is thus in the combination of micro- and macrolevel behaviour that we have a chance of developing new theories concerning teacher aptitude and teacher effectiveness. Ned Flanders and Graham Nuthall have recently made the following statement in an overview of research into the classroom behaviour of teachers published by the UNESCO Institute in Hamburg: "We know very little about how factors like training, education and personality affect the way teachers organise their activities. And we have only the beginning of any systematic knowledge of how teaching activities affect pupil growth" (Flanders and Nuthall 1972).

In a nutshell, this is the present state of our research. It is now an optimistic assessment that we will come nearer to solving these problems by broadening the old problem of teacher effectiveness so as to examine the role of the teacher in a wider context.

This will perhaps provide us with clearer relationships between predictions and progress criteria. We may perhaps, if we combine good teacher behaviour at the microlevel with different kinds of teacher role at the macrolevel, find the answer to the as yet unsolved problem of what characterises a successful teacher and how such a teacher can be trained. We must not rush things and imagine that there is a simple solution to these problems, but neither must we tire in our efforts to find an answer to them.

These efforts also include the necessity of analysing, in a more systematic manner than hitherto, what actually occurs at our teacher training institutes. Teacher training research will thus also

include studies of our teacher training institutes. What are the objectives, resources, processes and results of such institutions? How can these be related to a broadened teacher role?

Owing to lack of space, I cannot examine a number of other research problems associated with teacher training research. One of these relates to the way in which various development projects on curriculum and learning aids may be linked to each research project, in order to ensure that the results of research are utilised further by teachers and administrators, and how this can be practised in teacher training and teacher research.

Another problem is that of how the researcher is to define in the long term his role and duties. Traditional educational research, in which the researcher is an objective and neutral observer, is no longer regarded as the only method of research. "Hermeneutic" research in which the researcher is not objective but subjective, where he forms part of the process, is a new alternative model. The future may show an increasing amount of such research and also other alternatives to what we regard today as teacher research.

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Conclusion

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It is the task of the director of each Council of Europe Symposium to provide at the end some kind of final statement. Composing this presents certain problems. I am reminded of the composer Robert Schumann's definition of composition as being to remember a tune that nobody else has thought of. After a week that has been full of discussion in plenary sessions, this is difficult. Nor do I want to get between you and the papers that have been presented. As Leonardo da Vinci said, he who has access to the fountain does not go to the water pot, and my own water pot is likely to be rather empty at this stage of the week. In various symposia in which I have taken part the summing up has taken the form of either a polished lecture, which one sometimes suspects was prepar-

ed long before the event began, or a series of scattered impressions. I have chosen the latter, which may at least relate more accurately to some of the points that have been made by speakers and participants.

Let me remind you of the purpose of this event. It is set out in the programme as being centred upon the confrontation of research findings and administrative experience, and serving to detect growing points in the vast field of researchable areas of interest to both governments and the research community. What have the contributions we have heard from individuals and groups told us about this relationship between research and action?

I.

First, they have illustrated the limitations of research based knowledge. Limitations in its range and scope, in its influence on policy, in the type of problems that can usefully be tackled with existing techniques, and in both quality and quantity. Here in the United Kingdom, although we have increased our expenditure on education research and development twelvefold in the past decade, we still only devote 0.16 % of our educational budget to research and development activities. That is considerably more than some other countries represented here spend, but rather less than one or two of the front runners such as the United States and Sweden.

II.

The second aspect of the relationship between research and action, to which our conference has directed attention, has been the need for a model of research that goes beyond the controlled experiment and the factual survey, important though both of these are. There is, for example, the whole fascinating area of how what is done in school influences and is in turn influenced by the characteristics of the wider society. Several group chairmen have mentioned this. Professor Aebli referred in his address to the problem of deep structures; Professor Prost spoke of the changed climate of student expectations. Mr. Collier made points about the existence of a counter culture, and Professor Marklund outlined a progressive model of teaching. We sense that there must be a relationship between what happens in the school and the kinds of people we are and the kinds of society we inhabit. We suspect that how we train teachers may possibly have an effect on all this. Of course, the hard research evidence is perhaps a little ambiguous and discouraging. We read in the Coleman Report on educational opportunity of the small amount of variance that was accounted for by school factors. We read of similar findings in the UK Plowden Report and other studies that have been carried out. In a sense, a kind of sociological determinism (What can we do against the force of the family and the neighbourhood?) has replaced the former psychological determinism (What can we do when the genetic make-up is wrong, when children are born with a fixed IQ of 92?). This new determinism is as dangerous as the old. The criterion variables in research of this kind are nearly always much too limited, as for example in the research on class size and on shool factors in relation to achievement. There are judgements that you and I have got to make in the course of our daily lives that cannot by their very nature be firmly based upon research evidence, and I am sure that this is sensed above all by the administrators amongst us. But what are the most significant features of the relationships between the school and society? How can we begin to understand these deep structures which Professor Aebli mentioned? We know that what happens in the school does relate to a particular kind of society and a way of life. Sometimes the connections are direct. More often the school/society connections are diffuse, complex, indirect.

The practices of classroom and school reflect if you like, the deep structures of our way of life, of our political system, of our social pattern, of our psychological being, and our means of social control. Implicitly or explicitly, we tell pupils through the organisation of the school what constitutes worthwhile knowledge. We tell the pupil something about himself, something about society. To understand these deep structures and how they influence what we do is more important than to elaborate categorisations based upon such stereotypes as those of formal education or progressive education.

It may sometimes be useful to employ such stereotypes — we have done so this week — but they can be very misleading. The superficially progressive school and the superficially formal school can be very similar in respect of what, following Professor Aebli, I am calling their deep structures. What constitutes worthwhile knowledge, the importance of rationality, the allocation of time and space, concepts of knowledge as property (as when the specialist in history objects strongly when someone in what is another subject dares to trespass upon his own ground), the control of the emotional life, the importance of cognitive and affective responses, the significance of age and sex differences, the

whole problem of achievement motivation, attitudes towards authority — the school teaches about these both formally and informally. A school labelled progressive and one labelled formal could, in fact, be very similar in respect of some of these dimensions. Such over-simplified categorisations are not good enough.

We need much more research to refine our concepts, to explore what happens in schools and how what happens relates to the development of personality and to social process. The mutual interaction of school and society needs detailed empirical exploration if we are to avoid superficial evaluations based upon superficial changes in curriculum, in pedagogy and evaluation. We will make little progress in such exploration, if we concentrate over much on purely 'scientific' models of educational research. We need a full range of historical, sociological, philosophical and psychological studies, if we are to grasp these problems in all their complexity.

III.

The third aspect of the relationship of research and action that has come out of the contributions and group discussions here this week is the fact that our knowledge of the system is essentially role-related knowledge. Much as we may try, on occasions like this, to build bridges to facilitate understanding, the researchers' and the administrators' perception of problems are bound to vary. The whole system of incentives in the research world is different from that in the world of the administrator. The administrator wants fairly rapid, if carefully considered, action. He is not over much concerned with raising the statistical significance of research findings from, say, the 5 % to the 1 % level, especially if it costs another year's work and £5,000 to achieve it. He is concerned with getting something he can use. For the researcher, the incentive structure is different. The researcher builds his reputation by paying careful attention to all the nuances, by strict methodology, by cautious judgements, by hedging around his conclusions with appropriate qualifications — "other things being equal, by and large and on the whole it can hesitantly be suggested that if these conditions were replicated the following would be true." We tend to identify ourselves with (and by) systems of knowledge that serve to explain and to justify and legitimate our own role within a particular structure. It is simply no good expecting that people will, just by getting together, achieve instant communication, if in fact they are performing vastly different roles vis-à-vis the activity in question. One of the ways to limit the isolation of such knowledge systems is to create new interstitial roles, and we have been discussing some of those this week. By defining such new roles as professional tutor, consultant, new concepts of the inspector, we shall hopefully develop new patterns of incentives and rewards that will enable the separate knowledge systems to be bridged.

IV.

Fourth, several speakers have made it clear that research is not all of a piece. It has come through quite strongly from some contributions that a good deal of research work needs to be planned and undertaken in close collaboration with those whose life and work it affects. It is no good simply conducting research that is meant to influence action, if it does not reflect an awareness of what the problems of action are, and with some recognition of the administrators' and the policy makers' problems. So we need a variegated pattern of research not only in terms of its disciplinary basis but also in terms of its focus. Some free money is needed, some non-policy oriented support. Which government would have financed Piaget in 1926? Which government does finance some of the people who are, for all we know, working in Bristol or in London or in Edinburgh or in Berne at this moment, and whose findings may revolutionise the sort of discussions in which a gathering like this might find itself engaging in five, ten, fifteen years from now? Equally, there must be money for the policy oriented research that is planned with the needs of the system in mind, and those who are going to use it must be involved at the beginning. If the researcher ignores the action imperatives, he must not complain if no one takes any notice of his findings. So a variegated pattern is needed, not only in terms of disciplines but also in terms of focus.

V.

I think these are the four aspects that came through to me from what I heard this week concerning the relationship between research and action. What else? A lot of challenges to the contemporary framework have been made, challenges to the notion of professionalism, challenges to the very notion of teacher education itself, a salutary point that it is very useful for us to take into account. How can we classify the existing frameworks of teacher education in all their variety? A possible classification of the responsible institutions suggests that there are basically four levels. First,

there is what can be called *normal school A*, where entry to the course is prior to the age of completion of normal secondary education, and where training is limited to the achievement of competency in teaching a range of subjects at the primary level and doesn't extend beyond five years. The second level, *normal school B*, again provides for entry prior to the age of completing normal secondary education, but usually after the first certificate at approximately age 16 or at the end of compulsory secondary schooling. Here are to be found combined courses of education and professional training, not necessarily limited to subjects taught at the primary level, and extending beyond the normal age of completion of secondary education. A third level can be identified as the *college level*, where entry is after completion of full secondary education at 18, but not necessarily with the same level of qualifications as university entrants at that age — as for example in the United Kingdom, where entry to colleges of education has up to the present required five passes at Ordinary Level, whilst two passes at Advanced Level has been required of entrants to university.

At this training level we have two- or three-year concurrent courses of general and professional education leading to the award of a teachers certificate, often valid for work in primary, intermediate and lower secondary schools. Finally, there is a *university* stage, where after completing a full period of secondary education the future teacher enters a multi-purpose institution of higher education to follow three- to five-year courses of combined general education and professional training. Such courses may be either concurrent or consecutive, and lead to the award of a university degree, or its equivalent, and a teaching qualification. Such qualifications are endorsed as being valid for work at primary or secondary level, or at both, according to the nature of the course followed.

Such is one possible model. But does it do justice to some of the possibilities that were being raised by some of the participants here this week who were challenging the whole approach ? Does it do justice to the pattern that is now being adopted in the United Kingdom ? Does it do justice to the notion of the recurrent education of the teacher, of which we have heard much this week ? The essence of recurrent education is the regular interspersing of periods of education and of work, and to adopt this concept in relation to teaching raises a number of important questions. What can and should be included in initial education and training, and what can and should be left until later ? Are there some things that can only be done early, and which if left until later cannot be tackled ? What implications does a recurrent pattern have for the relationship of theory and practice in initial and post-initial training ? Professor Stones suggested earlier in the week that this should be largely a pragmatic matter, depending upon the recognition of a problem in relation to which some kind of theoretical understanding or some kind of practical experience is relevant. The programme should be flexible enough to admit that kind of movement between the one and the other type of work. There is also the whole question of that subjective transformation of experience that we try to achieve through mastering certain concepts and bodies of literature, and at what point these should be introduced during the course. There is the task of maintaining in all our countries a 'mature entry' of older men and women to teaching. We in the United Kingdom attach a good deal of importance to having room on our courses for some older men and women with experience of the world outside that of education.

VI.

It will help us to find useful answers to these questions, if we ensure that our arrangements for recurrent teacher education recognise the importance of a number of basic principles, namely :

Communication : There has been a tendency to think of post-initial teacher education mainly in terms of attendance at courses and conferences. This is far too narrow a view. Such courses and conferences are only part of a much broader system of communication by means of which all those who are involved in the educational enterprise — teachers, administrators, research workers, curriculum development specialists, teacher trainers — keep in touch with one another and with developments in their respective fields. To reconceptualise the problem in these terms avoids certain possibly dangerous assumptions, such as that all teachers should attend x courses of y days duration within a given period. For certain purposes, the traditional course and conference is a singularly ineffective means of communicating information or even inspiration ; a few hours at home with one or two relevant books would be much more helpful. Some teachers remain intellectually flexible and alive, open to new knowledge and ideas, and experimental in their approaches, without ever going near an in-service course. Equally, it can be guessed that the classroom practice of some of those who attend regularly remains completely unaffected by their experience. Such a formulation

also requires that we take into account the relationship between ideas and techniques, and the organisational settings in which they are communicated. To accept an idea within a group of like minded people on a course is a very different thing from having to try to apply it against the organisational conservatism of an individual school. At the present time, there are many thousands of teachers registered for credit earning courses with the Open University in the United Kingdom, undertaking their studies mainly on a correspondence basis with the aid of television and radio. The large number involved in such work underlines the need to think of recurrent teacher education as including all the means by which teachers study and learn — courses, conferences, television, radio, reading, formal credit earning studies, meetings at teachers' centres, discussions with colleagues, and so on.

Participation : The individual needs to accept responsibility for his own education, and this is as true for teachers as it is for any other category of student. To learn such responsibility requires participatory methods — the syndicate group, the shared project, the use of simulation and role playing and all the other methods that educational technology and a better understanding of educational process have made available. The traditional lecture has its place, but only as part of a much wider repetoire of techniques.

Professionalisation : This is a term that has come in for some criticism during the symposium, so I must try to make clear what I mean. The basis for my belief in professionalism is simple People are happier, and are likely to work better, when they have control over as wide an area of their activities as possible, and maximum opportunities for personal discretion in the pacing, distribution and structuring of these activities. If you tell me that in a complex, technological world characterised by a high degree of mutual inter-dependence there are many jobs where all this is utterly impossible, I have sadly to agree with you. If you go on to claim that there are millions who are not only happy with this state of affairs, but who positively prefer to be told what to do — either by a man or a machine — and who eschew any kind of responsibility for the conduct of their working lives, then I may be forced to concede that this is in fact the situation. But I would want to argue that one of the functions of a good education is to disabuse such people of their superficial and dangerous contentment. Although I know that the idea is now unpopular in some quarters, not least among teachers themselves, I remain convinced that we should work towards a greater measure of professionalism, away from the notion of the teacher as employee and towards a working relationship in which collegial rather than supervisory relationships are the norm. The application of this general principle in our own field is obvious. The functions that have hitherto been exercised by inspectors and organisers still have to be performed. But ultimately, I believe, they should be undertaken by men and women who are professional advisers, members of the staff of the local and regional colleges and professional centres, no longer labelled 'College of Education Lecturers', or 'Inspector of Handicraft', or whatever, but having responsibilities that straddle the full range of preservice education and training, the induction process and a variety of kinds of centre-based and school-based in-service provision.

Continuity : Recurrent education, in any form, essentially requires continuity between the different stages and kinds of study and work undertaken. Initial education and training, the induction process and further professional studies need to be conceived as a single whole.

Coherence : Within recent years there has been a move in several countries to associate teacher education more closely with other kinds of undergraduate study, and to end the alleged isolation that has characterised some teacher training programmes. This is to be welcomed, subject to the existence in each country of centres in which teachers, administrators, teacher educators, researchers and others can meet together and work out the implications of new knowledge and new ideas for the task in which they are all engaged. To supplement the work of such centres — in the provision of which I believe the universities have a major part to play — there is a need for opportunities to discuss problems of mutual concern at international level, such as has been provided by the present symposium.

VII.

Is it possible, then, to indicate, on the basis of the discussions during the past week, the *main desiderata* for planning the future of teacher education ? I believe that we have established a substantial measure of agreement on the following points.

First, students recruited to teacher preparation programmes should be of the highest quality ; admission requirements should be similar to those for other professional schools, and there should be room for a proportion of mature entrants who have

experienced the world of work beyond the classroom.

Second, there is no longer any reason for believing — if there ever was — that only certain personality types are suitable for training. Modern approaches to learning and teaching require the widest range of competencies, and it is not just the didactic extrovert who is needed in the classroom.

Third, the content of training programmes needs to be carefully planned in accordance (a) with what is known about the process of learning and teaching, about the development of children, and about the relationship of education and society; (b) within a context of recurrent teacher education, and (c) in a way that ensures that the course as a whole is coherent and meaningful to the students.

Fourth, there needs to be a constant interpenetration of practical experience and theoretical discussion, both during initial training and beyond.

Fifth, the widest variety of approaches to the task is called for, making use where appropriate of, for example, performance based methods, microteaching, closed circuit television, simulation, curriculum packages and so forth.

Sixth, teacher education needs the support of curriculum development agencies by means of which teaching materials can be devised and tested, and the outcomes of recent research in the human sciences incorporated into the training programmes. Seventh, research concerning the structures, the process, the content and the outcomes of teacher education should be going on in every country, and there should be ways in which the information and understanding thus obtained can be fed back to the design and execution of the programmes themselves.

Eighth, attention should be given to the continued education and training of those who are involved in teacher education, and this should include provision for regular contact with research studies in relevant fields and with the teaching and learning process in the school classroom.

It is not difficult to go on adding to such a list, but I believe that these eight points reflect the main areas of agreement that can be identified as a result of our discussions. A week of talking and listening will not settle the problems or the future of teacher education, but it has at least served to show the points of contact between our various national concerns and to suggest some of the fronts on which progress might be made. All of us are grateful to the Council of Europe and to the British authorities for making such an exchange of views possible. We hope that it will be by no means the last occasion on which these issues form the subject of a symposium in the Council's educational research series.